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Outcomes and experiences of participants of the Activity Based Experience (ABE) Programme at Richmond Services Limited: a mixed methods study

A thesis submitted in partial fulfilment of the requirements
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Abstract

Objectives: Evidence suggests that physical activity reduces symptoms of clinical anxiety and depression, however, very little research has been published about service user's experiences with physical activity interventions. The ABE Programme is a client-centred, individualised physical activity intervention for people with mental illness delivered by non-government organisation Richmond Services Limited. The objectives of this study were to investigate service users' outcomes, experiences, barriers to physical activity and contributing factors for physical activity adherence, to make recommendations for health policy, community development, service improvements and further research.

Methods: An explanatory concurrent mixed methods design was applied: for the quantitative component a simple quasi-experimental reversal study to analyse participants' physical (blood pressure, body weight), mental (self-esteem, mental well-being) measures, physical activity level and smoking status; for the qualitative component a descriptive study conducting semi-structured interviews with participants of the programme.

Results: Thirty assessment results were available for the quantitative data analysis. Self-esteem, mental well-being and physical activity levels showed significant improvements, whereas physical measurements and smoking status showed no changes. Thirteen interviews were conducted. Qualitative findings reinforced and enhanced quantitative results. Participants' experiences were physical, psychological and social. Support was important to overcome barriers. Multiple factors contributed to maintaining physical activity. Clients made suggestions related to the support, structure and contents of the programme.

Conclusions: The ABE Programme contributes to the improvements of participants' mental and physical well-being. Professional support is crucial. Improvements are recommended regarding follow-up support, group activities and evidence-based physical activity adherence methods. Emphasis for policy should be on early intervention, collaboration between services and physical activity promotion approaches on multiple levels. Further research is recommended, for example, to develop efficient and cost-effective physical activity adherence approaches. Future research could include single subject studies, surveys and focus groups studies within Richmond and across the wider mental health sector.

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"Facts bring us to knowledge,

stories bring us to wisdom"

Rachel Remen

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Glossary of relevant terms

Experience

An experience according to the Oxford Dictionary (n.d. a) is “an event that left an impression on someone”. It also means “practical knowledge, skill or practice derived from direct participation in a particular activity” and “something personally encountered, undergone or lived through” (Merriam-Webster Dictionary, n.d. a). Therefore, an experience is an emotional, cognitive and/or practical reaction to an activity. Because experiences are subjective, the same activity can be experienced differently by individuals.

Health

The World Health Organisation (WHO, n.d.) defines health as the “state of complete physical, mental, and social well-being, not merely the absence of disease.” According to this definition, health has three dimensions: physical, mental and social. Health is influenced by personal as well as environmental factors.

Outcome

An outcome is a final product, consequence or end result (Merriam-Webster Dictionary, n.d. b). In relation to this study outcome means an objectively measurable and assessable result.

Well-being

Simply put, well-being is the state of being comfortable, healthy and happy (Oxford Dictionary, n.d. b). From a scientific perspective Diener, Oishi and Lucas (2009) define subjective well-being as a cognitive and affective evaluation of a person’s life and include cognitive judgements of life satisfaction and affective evaluations of moods and emotions. Thus, well-being is the conscious experience of pleasant emotions and high life satisfaction.

Quality of life

The World Health Organisation (WHO) defines quality of life “as individual’s perception of their position in life in the context of the culture and value system in

which they live and in relation to their goals, expectations, standards and concerns" (WHO, 1996, p. 5). Therefore, perceived quality of life differs from person to person, depending on their physiological (such as physical functioning), environmental, psychological (such as individual beliefs, values, mood) and social (including ethnical, cultural, relationships) circumstances.

Client, patient, participant, respondent, interviewee

For this study, these terms are used as follows:

- Client, patient: user of a health service, for example the ABE Programme;
- Participant: a subject of a research study, also a client of the ABE Programme who consented to take part in this study;
- Respondent, interviewee: person who took part in the interview for this study.

1. Introduction

1.1 Rationale for this study

What is the effectiveness of the Activity Based Experience (ABE) Programme for people with mental illness? What are the participants' perspectives of the programme? Established in 2008, the ABE Programme is an initiative delivered by the community based mental health service, non-government organisation (NGO) Richmond Services Limited (Richmond) in Christchurch, with the primary aim of encouraging people living with mental illness to engage in healthier lifestyles. The service offers client-centred, individualised programmes of three months duration which primarily incorporate exercise for the improvement of physical health and mental well-being.

An audit of routinely collected physical (blood pressure, weight, body mass index) and mental (Rosenberg Self-esteem Scale) measures of clients of the ABE Programme was conducted in 2009. That audit compared assessment results of 28 clients at three time periods (at entry, exit and approximately six weeks post-exit) and analysed results of 25 satisfaction surveys which were completed voluntarily at the end of the programme. The results showed only minor and statistically non significant physiological changes, but significant improvements in self-esteem. Clients seemed generally very satisfied with the service (Grueber, 2010). A follow-up evaluation of 60 clients conducted in July 2011 showed similar results (Richmond New Zealand, 2011c). However, it was unclear from the clients' point of view how the ABE Programme contributed to these changes? What did clients perceive as barriers to exercise and what factors contributed to overcome these? How could the programme be improved to better meet their needs?

Mental health awareness advocates such as the Mental Health Foundation of New Zealand (2008) point out that most evidence and guidelines for practice come from quantitative studies and seldom incorporate service users' perspectives and experiences. They, among other scientists, advise that for the development of effective and broader evidence-based mental health services, participants' views are essential (Crone, Heaney & Owens, 2009). Also the New Zealand Ministry of

Health's expectations for the mental health sector outlined in 'Rising to the Challenge: Mental Health and Addiction Service Development Plan 2012-2017' are to promote the involvement of service users in the delivery and planning of services.

The aims of this study are to address these issues and to reduce the research gap by not only evaluating the collected assessment data, but also by compiling in-depth information about clients' experiences with the ABE Programme and their barriers engaging in exercise. Further, the research aims to make recommendations for service improvements, community, mental health policy development and future research requirements and opportunities. In order to measure participants' outcomes, as well as to understand their experiences, a mixed methods design was chosen for this study: a quantitative component comparing participants' physical and mental assessment results collected at entry, exit and post-exit; and a qualitative component conducting semi-structured interviews with participants in the programme. The outcomes of this study may help to secure future funding of the programme and can be used as a basis for the development of similar programmes and further research.

In order to understand the current context for the ABE Programme, it is important to review briefly the development of mental health services in New Zealand.

1.2 Trends of mental health services in New Zealand

1.2.1 Early developments

During colonisation of New Zealand in the 19th century the government was reluctant to be involved in providing health services, leaving the responsibility mainly with families and communities (Barnett & Barnett, 2006). The exception was when mentally ill people (called 'lunatics' at the time) were threatening public safety or needed supervision and care. Then they were sent to a gaol (prison), received no treatment and only supervision (Brunton, n.d.). The first psychiatric institutions ('asylums'), funded and controlled by the government,

were established in the 1850s (Barnett & Newberry, 2002). Treatment was based on ‘moral management’, which included farm work, church services, certain ‘medications’ (such as alcohol, epsom salts, castor oil, colocynth pills, morphine) and, at times, seclusion and restraint (Bloomfield, 2001). Records from the Dunedin Lunatic Asylum show that treatment also involved exercise, dances and recreation as well as good food (Bloomfield, 2001; Brunton, n.d.). With the Mental Defectives Act 1911, people could for the first time admit themselves voluntarily to a ‘mental hospital’ (Brunton, n.d.). Treatment in those hospitals included insulin injections (insulin coma therapy, ICT), brain surgery (leucotomy) and electroconvulsive therapy (ECT) (Brunton, n.d.). As new forms of treatment for mental illness were introduced after the First World War, some independent, not-for profit agencies emerged to provide community based mental health services, including individual and group psychotherapy.

1.2.2 The welfare state

After the election of the first Labour government in 1935 the health system changed dramatically with the government’s aim to create a welfare state. The Social Security Act 1938 provided for complete state funding of primary care, and hospital as well as mental health services. Over the years, voluntary agencies increasingly received grants from the state (Barnett & Barnett, 2006). Because clear policies were lacking and performances were not monitored, the benefits of the services for clients were unknown (Barnett & Newberry, 2002). In the 1950s new medication to treat mental illnesses became available. The Mental Health Act 1969 further promoted community based treatments and under the umbrella term ‘community care’ more non-government organisations (NGOs) emerged. NGOs were expected by the government to provide flexible, responsive and innovative health and disability services (Ministry of Health, n.d. f). For example, the NGO Richmond Services (previously known as Richmond Fellowship or Richmond New Zealand) was established in 1978 (Richmond New Zealand Trust, n.d. b) mainly to provide services for young adults with psychological and social needs. The main features of the welfare state continued relatively unchanged for almost 60 years (Barnett & Barnett, 2008).

1.2.3 Restructuring of the health system since 1980

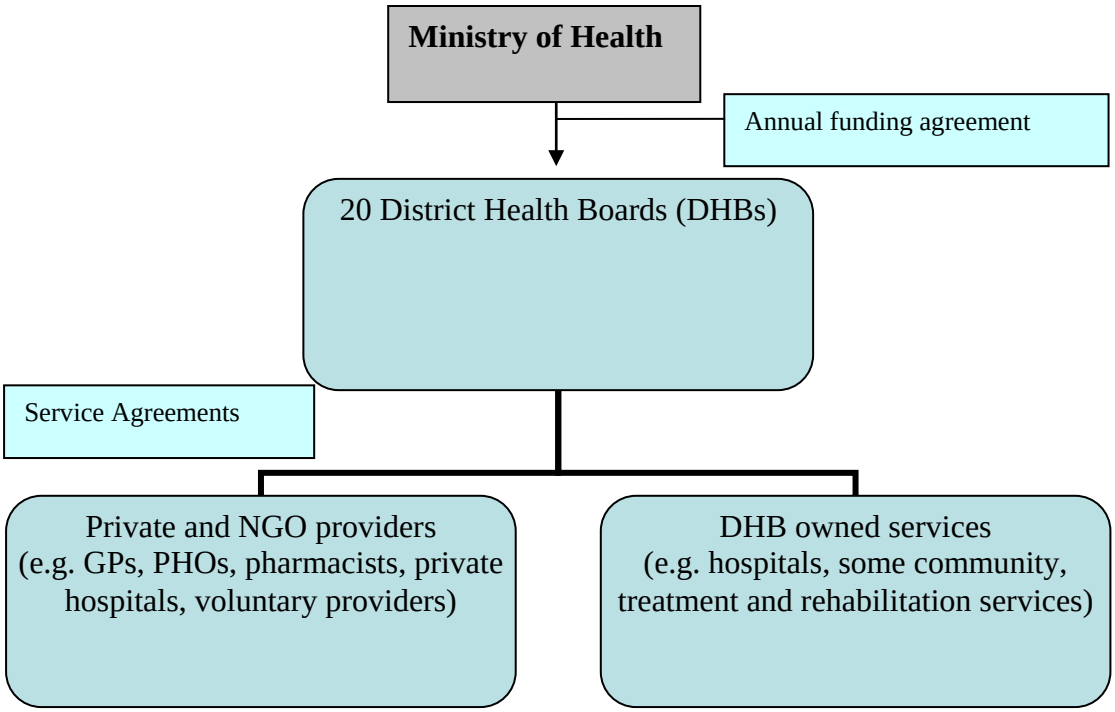
Major restructuring of the health system occurred in the 1980s with the Labour government seeking greater efficiency, accountability and less government involvement (Barnett & Barnett, 2006). The government aimed to rationalise social services towards more managerialist practices, including standards for budgeting and reporting of finances as well as quantitative 'outputs' (Barnett & Newberry, 2002). The National government continued this trend in the 1990s establishing quasi-market arrangements for the health system. Regional Health Authorities (RHA) issued contracts to, among others, community mental health services who competed for funding (Gauld, 2001). Following a change of government and the recognition of the problems of the market system, the health system was reformed once again by Labour with the Public Health and Disability Act 2000. The reform is known as the 'third way', which can be described as a balancing of the two previous systems incorporating both state control and market structures (Belgrave, 2008). In practice the government established 21 District Health Boards (DHBs) funded through a population-based grant. These DHBs (now 20 in number) are responsible for almost all health services, including mental health services under the policy guidance of the Ministry of Health (Gauld, 2003). DHBs do not provide all services; they have service agreements with NGOs, Primary Health Organisations (PHOs) and other health providers. Figure 1 provides an overview of the current health system in New Zealand.

Since 2001 there has also been a stronger emphasis on primary health care through the Primary Health Care Strategy. The consequent formation of Primary Health Organisations (PHOs) has led to a more coordinated approach with primary care becoming increasingly involved in delivery of some mental health services (Mental Health Commission, 2007).

Overall, the approach of governments since the 1990s was to 'hollow out' the welfare state with increased privatisation, decentralisation and flexibility (Barnett & Newberry, 2002). This led to regional variations of services, but an expansion of the range of services in order to provide more choice and to meet the needs of clients (Barnett & Newberry, 2002). These changes provided an ideal platform for

NGOs which received, by 1999, a significant amount of government funding (Barnett & Barnett, 2006).

Figure 1: Overview of some relevant components of the structure of the New Zealand health system 2000 to present (adapted from: Ministry of Health, 2003)



1.2.4 The Mental Health Commission

A major influence on the mental health sector was the Mason Inquiry in 1996 which recommended the establishment of a Mental Health Commission, ongoing funding provided for sector improvements and national anti-stigma initiatives (Mental Health Commission, 2007). The Mental Health Commission was established in 1998 and was responsible for overseeing the national mental health strategy. Its main task was to produce a 'Blueprint' for the development of effective mental health services, a timetable for implementation and to monitor its progress. The first Blueprint, published in 1998, focused on recovery, holistic views of mental health and reduction of health inequalities. It recommended providing funding for innovation and the expansion of mental health services and specialised community based services (Mental Health Commission, 2007).

To change negative attitudes towards mental illness, several anti-discrimination and anti-stigma campaigns were launched. These included, for example, the public education programme 'Like Minds, Like Mine' and the online self-help National Depression Initiative fronted by Sir John Kirwan. Other positive changes have occurred since the 1980s. For example, since the Cartwright Report in 1988, clients' rights and advocacy services have been legally acknowledged and reinforced by the Health and Disability Code introduced in 1996 (Gawith & Abrams, 2006). At the same time the importance of clients' participation in mental health services was recognised by the Mental Health Commission (2002) with the document 'Service user participation in mental health services: A discussion document'. Several peer-led services have emerged since then, such as the telephone peer support service 'Warmline' from Comcare Trust in Christchurch.

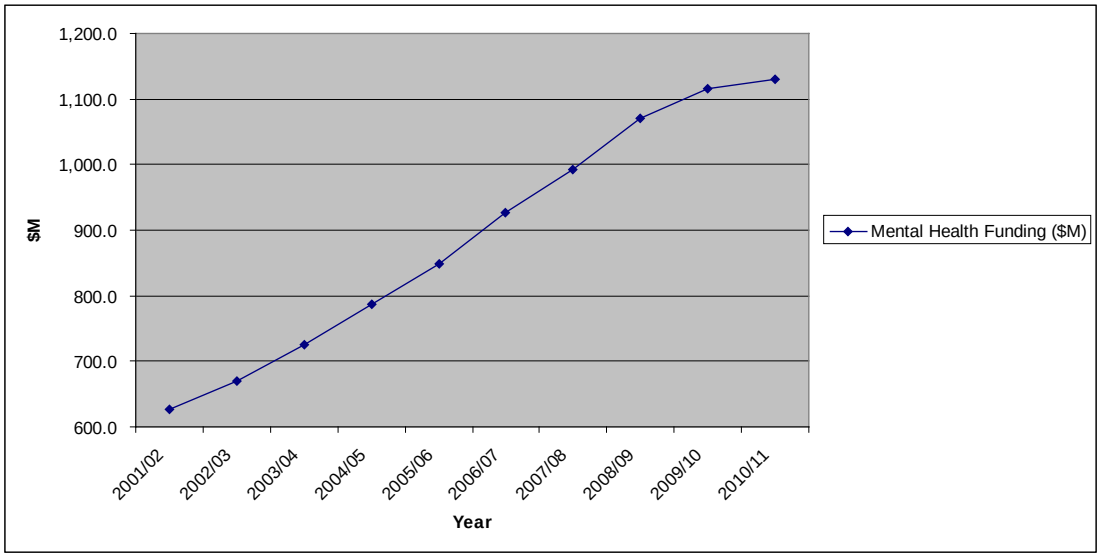
An important influence on the mental health sector for the next few years will be Blueprint II which was published in 2012 (Mental Health Commission, 2012 a, b). Blueprint II acknowledged the achievements made since the first Blueprint, including an increase in specialist services; improved involvement of service users; more community based, primary support services; and secure funding. It also reinforced principles for the future direction of mental health services, particularly people-centred and directed recovery and a resilience approach. Services and supports have to be designed in collaboration and around the person's needs. Principles of Blueprint II include providing evidence of outcomes and results based accountability, emphasizing a holistic and systemic view of mental health and strengthening early intervention. Priority actions are to reduce waiting lists, improve collaboration between agencies (including NGOs) and support for youth and people who experience inequalities of outcomes.

1.2.5 Ministry of Health funding

The government funding of mental health services is increasing (Ministry of Health, 2002). On request, the Ministry of Health provided detailed, unpublished information about the funding of mental health services from 2001 to 2011,

showing that government funding for mental health services almost doubled from 2001/02 to 2010/11; from $692 million to $1,128 billion (Figure 2). While this is a large amount of money, considering that there are, according to the National Health Survey (Ministry of Health, 2012c), an estimated number of 800.000 people experiencing mental illness/distress, the annual average cost per person to health services is quite low, only about $150.

Figure 2: Funding of mental health and addiction services 2001/02 to 2010/11 (inflation rate not accounted for) (unpublished data provided by the Ministry of Health in 2012)



1.3 Prevalence of mental illnesses amongst New Zealanders

The most robust data available on the prevalence of mental illnesses amongst New Zealanders is provided by the National Mental Health Survey (Oakley Browne, Wells & Scott, 2006). According to this survey, mental illnesses are common: 39.5% of New Zealand's population aged 16 and over met the criteria of the DSM-IV (American Psychiatric Association, 2000) for a mental illness at one stage in their life. For Māori and Pacific people the statistics were higher: 50.7% of Māori and 46.5% of Pacific people had experienced at least one

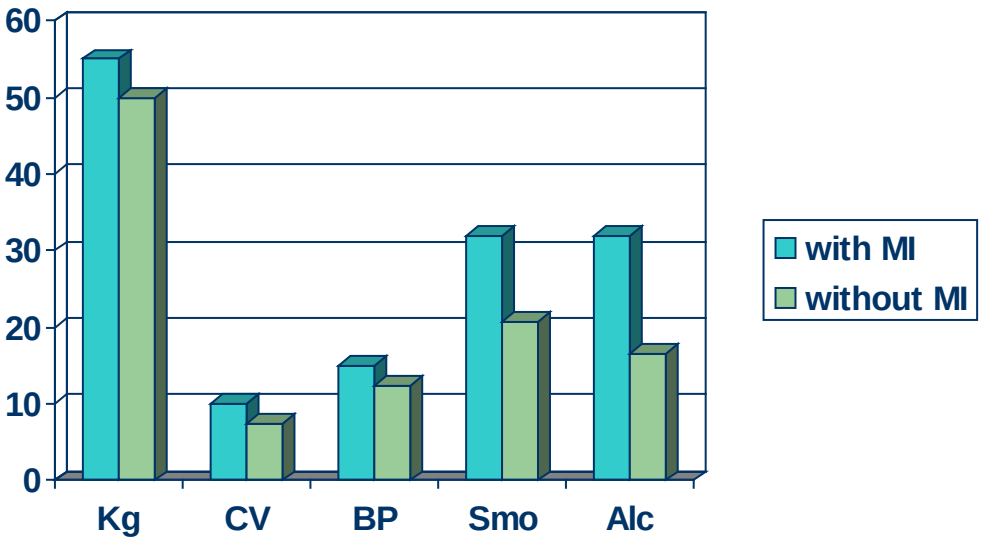
period of mental distress in their life. Females had a higher prevalence of any disorder than males (female: 42.3%; male: 36.5%). Approximately one in five New Zealanders (20.7%) experienced a mental disorder within the twelve months prior to the survey. The most common diagnosed mental health issues were anxiety and mood disorders (depression, bipolar). The 12-month prevalence of anxiety was 14.8%, mood disorder 5.7%. It is estimated that 3% of the adult population have a severe mental disorder, 5% moderate and 12% mild (Ministry of Health, 2002, 2003). People living in the most deprived areas were more likely to have been diagnosed with a mental disorder than people living in less deprived areas (Oakley Browne, Wells & Scott, 2006; Ministry of Health, 2012c).

There are indications that the number of people diagnosed with mood and anxiety disorders is increasing. For example, according to the National Health Survey published by the Ministry of Health in 2012c the percentage of self-reported anxiety and mood disorders increased from 13% in 2006 to 16% in 2012. Regional data from the survey showed that the Canterbury region has a 5% higher prevalence (21%) than the national average (Ministry of Health, 2013). This may be related to the two major earthquakes in Christchurch in September 2010, February 2011 and their ongoing aftershocks which resulted in significant changes in life circumstances. Also, the number of people seeking help from DHB mental health and addiction services increased. Between 2003/04 and 2009/10 the number of clients seen by DHBs increased by 26% (Ministry of Health, 2012 b). In contrast to common assumptions, males were more likely than females to seek help regardless of ethnicity. An increasing number of young people aged 15 to 25 sought help from DHB mental health and/or addiction services (an increase of 24% between 2006/07 and 2009/10). Similar data from NGOs is incomplete; for 2009/2010, only 40% of NGOs reported data on mental health and addiction service use. Better reporting of NGO data will enable a more comprehensive analysis.

According to the National Mental Health Survey, people with mental health problems have an increased prevalence of several chronic physical conditions and unhealthy lifestyle habits (Oakley Browne, Wells & Scott, 2006). For example,

55% of people with a mental illness (MI) were overweight or obese (50% without MI), 32% were smoking (21% without MI) and 32% abused alcohol (16.5% without MI). See Figure 3 for details.

Figure 3: Comparison of physical health risk factors for people with and without mental illness (MI) - % of population (data from Oakley Browne, Wells & Scott, 2006)



Key:

Kg: overweight / obese

CV: cardiovascular disease

BP: high blood pressure

Smo: smoking

Alc: hazardous alcohol use

Research suggests that the premature mortality rate for people with mental illness is higher and life expectancy is lower than for the population as a whole (Mitchell & Lord, 2010; Mitchell & Lawrence, 2011). Mental illness also appears to be associated with an increased likelihood of type 2 diabetes (Kruse, Schmitz & Thefeld, 2003). Physical health problems can be caused by, for example, side effects of medication and lifestyle factors, including lack of physical activity, poor dietary habits, alcohol and smoking (Connolly & Kelly, 2005; Fenton & Chavez, 2006; Howard, El-Mallakah, Rayens & Clark, 2007; Llorente & Urrutia, 2006; Porter & Evans, 2008; Smith, Yeomans, Bushe, Eriksson, Harrison, Holmes et al.,

2007 a; Wand & Murray, 2008). Some of these health problems may be preventable and treatable with behavioural changes. Both the Mental Health Commission's 'Blueprint II' and the Ministry of Health's (2012a) 'Rising to the Challenge: Mental Health and Addiction Service Development Plan 2012-2017' recommend the promotion of physical activity and healthy nutrition through, for example, brief interventions. One brief healthy lifestyle and physical activity intervention is the activity based ABE Programme of Richmond Services, the subject of this study.

In summary, the mental health system of New Zealand is constantly changing in order to adapt and respond to current national circumstances and research findings. For the foreseeable future changes will include a further shift towards primary care to achieve fast access to services, increased specialised community based services; increased collaboration of services and communication between service providers and users. Funding of mental health services will increasingly depend on evidence of effectiveness, early intervention and systemic approaches.

1.4 Research questions

The research questions of this study are:

- What are the outcomes and experiences of participants of the ABE Programme?
- What are their barriers to engaging in physical activity and which factors contributed to exercise adherence?
- What recommendations can be drawn from the findings for service improvements, community and policy development, and further research?

1.5 Structure of this thesis

This thesis is structured as follows:

Chapter two reviews the literature related to mental health and physical activity. It defines how the terms 'mental health/illness', 'exercise' and 'physical activity' are used in this study and discusses barriers to exercise and the issue of exercise adherence. Research into physical activity and mental health is described and some theories of their relationship are summarised. This is followed by a brief description of selected national and international physical activity interventions for people with and without mental health issues.

Chapter three introduces the context and organisational setting of this study. This includes a brief overview of the Canterbury District Health Board (CDHB), NGO Richmond Services, and the organisational service delivery model 'Outcomes Framework'. This chapter also introduces the ABE Programme and its alignment with Richmond's Outcomes Framework.

Chapter four describes the research methodology for this study: which is an explanatory sequential mixed methods design. The quantitative component consists of a non-controlled, pre/post-intervention evaluation of physical and mental measurements, smoking status and physical activity level. The qualitative component is a descriptive qualitative study of semi-structured interviews with participants of the ABE Programme. The chapter outlines the theoretical framework 'recovery', ethical considerations and recruitment process for this study.

Chapters five and *six* present the results of the quantitative and qualitative components of this study.

Chapter seven discusses the results of this study. *Chapter eight* concludes the thesis by providing recommendations for improvements of the ABE Programme, community and policy development and further research.

2. Research into physical activity and mental health

2.1 Introduction

This study is concerned with mental health, physical activity/exercise and related interventions. It is essential to review the literature and research into these topics. What is mental health/illness, physical activity/exercise and their relationship with each other from a research perspective? And what are some examples of national and international interventions to promote physical activity? This chapter aims to answer these questions. Where relevant, at the beginning of each section a brief description of the approach to the literature search is given.

2.2 Defining mental health and mental illness

The literature provides different definitions, perspectives and interpretations about mental health and mental illness/disorder. Depending on the way the terms are used, they can reinforce stigma and discrimination. Therefore, it is important to discuss these terms briefly and clarify how they are used in the context of this thesis. For the scope of the thesis, the terms are defined from three perspectives:

1. medical and legal;
2. holistic and systemic;
3. people with mental illness.

The medical perspective of a mental disorder is described in the Diagnostic and Statistical Manual of Mental Disorders (DMS-IV-TR) by the American Psychiatric Association (2000, p. xxxi). The manual defines mental illness/disorder “as a clinically significant behavioural or psychological syndrome or pattern that occurs in an individual and that is associated with the present distress (e.g., a painful symptom) or disability (i.e., impairment in one or more important areas of functioning) or with a significantly increased risk of

suffering death, pain, disability, or an important loss of freedom". From a legal perspective, the New Zealand Ministry of Justice (n.d.) defines a mental disorder as "an abnormal state of mind of such a degree that it poses a serious danger to the health or safety of the person or of others, or seriously diminishes the capacity of the person to take care of himself or herself". These definitions of mental illness/disorder focus on the negative, 'abnormal' aspects of mental distress for individuals or the society. Mental disorders are categorised in different diagnoses and treated accordingly. The media and society sometimes name a person, for example, with a diagnosis of schizophrenia a 'Schizophrenic'. This can create stigma and discrimination, in particular if mentioned in a criminal or violent context.

Several authors suggest that in order to overcome the narrow medical and legal view and to reduce stigma and discrimination it is important to take a more holistic and systemic view that considers the person as a whole and the context in which the individual lives. Eberwein (1996), for example, points out that a disorder also needs to be seen in a social context and individual circumstances. As a consequence, with social and environmental changes individuals would be less 'handicapped' (Rheker, 1996). Rheker suggests taking into account the person as a whole rather than just the diagnosis.

It is also beneficial to consider how people experiencing mental illness define the term. One definition was published by the New Zealand Mental Health Commission (2004, p. 16): "Mental illness is seen as a state of being with associated personal and social barriers to achieving a life worth living. It also presents philosophical and spiritual challenges that value and meaning can be derived from. Mental illness is not just a medical condition". This definition points out that a mental illness should not only focus on the medical condition and limitations, but also on the potential and opportunities. Furthermore, the social, spiritual and systemic contexts of the person should be considered.

These more holistic and systemic approaches suggest that people with or without a mental health diagnosis can achieve a "state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can

work productively and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community" (WHO, n.d.).

In summary, a mental health diagnosis does not determine a person and her/his life, and social and environmental circumstances need to be taken into account. These factors play a major role in mental well-being and may be modifiable (for example by community activities/services, housing conditions). Furthermore, this perspective provides an opportunity to reconceptualise the defect-oriented perspectives and limitations of stigma and discrimination. Richard von Weizsheacker (1993, p. 23), former Minister President of Germany, once said: "es ist normal verschieden zu sein" (translation: 'it is normal to be different'). For this thesis, the terms mental health/illness/disorder should be understood in the above described holistic sense. Therefore, the terms 'people with a mental illness' or 'person with mental health issues' are used in order to put the person first, with mental illness only one characteristic of the person.

2.3 Understanding physical activity and exercise

2.3.1 Definition of physical activity and exercise

Physical activity is defined by the New Zealand Ministry of Health (n.d. a) as any physical movement which is produced by skeletal muscles. This includes all kinds of activities such as walking, gardening, house work, taking steps and carrying objects.

Exercise, on the other hand, involves the planned, organised and repetitive components of physical activity in order to initiate or maintain fitness (LeUnes, 2011). Therefore exercise is a specific form of physical activity and includes, for example, sports or going to the fitness centre.

The New Zealand Ministry of Health (n.d. b) recommends at least 30 minutes of moderate intensity cardio-vascular physical activity on most days. This is aligned

with the recommendations of the American College of Sports Medicine which is the largest sports medicine and exercise science organisation in the world (ASCM, n.d.). According to ACSM, these guidelines are based on the latest science related to physical activity and its association with enhanced physical health and quality of life.

2.3.2 Barriers to physical activity for people with mental illness

Research indicates that individuals with mental health issues are less likely to be involved in leisure and fitness activities, have poorer nutrition and lower levels of fitness and motivation than other people (Biddle & Mutrie, 2008; Daumit, Goldberg, Anthony, Dickerson, Brown, Kreyenbuhl, Wohlheiter & Dixon, 2005; Martinsen, Strand, Paulsson & Kaggestad, 1989; Lambert, Velakoulis & Pantelis, 2003; Ussher, Stanbury, Cheeseman & Faulkner, 2007; Wallace & Tennant, 1998). Several factors contribute to this and need to be considered when promoting physical activity for people with mental illness:

Mental illness itself can be a barrier to exercising because diagnostic criteria can include low energy levels, loss of interest and lack of motivation. For example, according to the DSM-IV one criterion for a depressive episode is “fatigue or loss of energy nearly every day” and “markedly diminished interest or pleasure in all, or almost all, activities” (American Psychiatric Association, 2000, p. 356).

The medication prescribed to treat symptoms of mental illness can be another barrier (Roberts & Bailey, 2011). Several studies confirmed that antipsychotic medication, mood stabilizers and most antidepressants are linked to weight gain and diabetes (Evans, Newton & Higgins, 2005; Harrison, 2004; Llorente & Urrutia, 2006; Fenton & Chavez, 2006). The case studies published by Berigan (2004) showed that a common side effect of antidepressant medication was low motivation and energy levels.

Studies demonstrated a strong association between low socioeconomic status and mental illness. For example, a two year follow-up study of 660 psychiatric

inpatients conducted in Auckland showed that greater levels of socioeconomic deprivation were associated with increased hospital admissions and longer hospitalisations (Abas, Vanderpyl & Robinson, 2008). People with a low socioeconomic status may not be able to afford access to leisure facilities, sports clubs or fitness centres.

There are other barriers to physical activity for people with mental illness. A qualitative study, which asked psychiatric outpatients about barriers to physical activity, revealed that inconsistent support by health professionals, family or friends, negative attitudes by professionals and fear of discrimination were perceived as the main barriers (McDevitt, Snyder, Miller & Wilbur, 2006). The meta-ethnography by Soundy and colleagues (2012) pointed out that lack of personal control, unknown situations, competitive circumstances and feeling coerced can also create barriers for some clients.

Finally, research into exercise adherence indicates that poor physical health, obesity, smoking, personal sedentary history, the physical environment (such as metropolitan land use, bad weather, limited access to facilities or inconvenience), lack of knowledge and beliefs in the health benefits of exercise, and life stressors (such as injuries, sickness, moving house) are related to physical inactivity (Buckworth & Dishman, 2007; Weinberg & Gould, 2011).

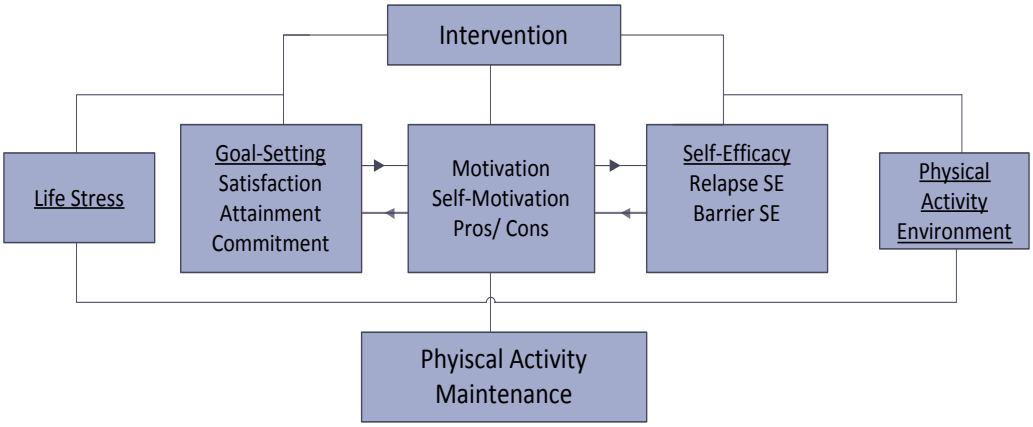
The above reasons suggest that it can often be a challenge for individuals to meet the recommendations by the New Zealand Ministry of Health and American College of Sports Medicine. Clearly, further research on how to limit barriers and enhance exercise adherence is needed. The next section reviews a theoretical framework which is based on several behavioural theories and research on exercise adherence.

2.3.3 Physical activity adherence

The question of how to improve physical activity adherence remains a challenge. A meta-analysis of physical activity programmes and participant adherence reviewed 127 research studies including 131000 subjects in different settings and countries. This study showed that approximately 50% of people starting an exercise programme will drop out within the first six months without specific intervention (Dishman & Buckworth, 1996). It is likely, because of the above mentioned barriers, that the drop out rate for people with mental illness is even higher.

There are different theories, models and research about behaviour change and exercise adherence. Nigg and colleagues merged the most validated and well researched models together in the Physical Activity Maintenance Model (PAM) (Figure 4) (Nigg, Borrelli, Maddock & Dishman, 2008).

Figure 4: The Physical Activity Maintenance Model (PAM) (adapted from Nigg et al., 2008)



From Figure 4 it can be seen that life stressors and the physical activity environment have a contextual influence on exercise adherence, which can be positive or negative, modifiable or non-modifiable. For example, individual exercise history is not modifiable retrospectively, but knowledge about the health benefits of exercising can be modified. PAM advocates self-efficacy, motivation and goal-setting as the most relevant mediators for physical activity

adherence. These factors are interrelated, bidirectional, integral and need to incorporate individual differences (Nigg et al., 2008).

Self-efficacy

Self-efficacy is the confidence in one's own ability to carry out certain behaviours (Bandura, 1977). According to Bandura (1977), self-efficacy has direct influence on choice of activities and is a dominant predictor of behaviour. Within PAM, self-efficacy addresses the confidence to overcome barriers and be able to maintain physical activity long-term (*barrier self-efficacy*). *Relapse self-efficacy* is the degree to which a person will stop exercising in certain situations (Nigg et al., 2008). Motivational interviewing (MI) is seen by the authors as the most appropriate type of intervention to enhance self-efficacy. MI is defined by its founders Miller and Rollnick (2013, p. 12) as "a collaborative, goal-oriented style of communication with particular attention to the language of change." Enhancing self-efficacy is one of the key elements of MI (Miller & Rollnick, 2002).

Motivation

Motivation can be autonomous (intrinsic, 'wanting to do something') and controlled (extrinsic, 'having to do something'), according to the Self-determination Theory (SDT) (Decy & Ryan, 2008). In order to be effective and meaningful, motivation should come from within (intrinsic) (Hodge, 2010). Again, MI is proven to be a beneficial method to elicit intrinsic motivation to physical activity. A large RCT with 334 participants conducted in the United Kingdom (UK) showed that people who participated in up to six MI counselling sessions were at six months physically more active than the control group, which only received standard information (Hardcastle, Taylor, Bailey & Castle, 2008). One MI technique is to weigh up the advantages and disadvantages of maintaining physical activity. This technique is regarded by various authors as the most beneficial strategy towards intrinsic behaviour change for people with mental health problems (Arkowitz & Burke, 2008; Arkowitz & Westra, 2004; Corrigan, n.d.; Methapatara & Srisurapanont, 2011; Sciacca, 1997; Westra & Dozois, 2006, 2008). However, according to Corrigan (n.d.), low motivation, lack of interest and possible reduction of cognitive abilities among people with mental illness may

make it difficult to apply MI successfully. Therefore, a more practical (i.e. activities) rather than cognitive (i.e. talking, like MI) approach or a combination of both may be more valuable than using MI only.

Goal setting

According to Hodge (2010), goal orientation is related to motivation. Goals can be based on tasks (abilities), outcomes (process and product) and social approval (recognition, praise) (Hodge, 2010). Goals should correspond to *commitment* to physical activity, *attainment* (reaching goals) and *satisfaction* (with progress towards goals) (Nigg et al., 2008). Effective goals are flexible, specific, reviewed regularly, time-based, set by individuals themselves, meaningful, intrinsic in content ('I want to') and focus on personal interests and values (Weinberg & Gould, 2011). Weinberg and Gould (2011) suggest that people should be involved in developing the structure, content and steps to achieve these goals and that the focus should be placed on the process towards a goal instead of the end product.

Nigg et al. (2008) highlight that PAM is a theoretical framework which had not been tested scientifically on its practicability and applicability. The authors recommend RCTs or epidemiologically orientated studies in order to develop effective and cost-effective interventions to increase long-term exercise maintenance.

What are the effects of exercise for people with mental illness? What is the current state of the scientific evidence? The following section considers research concerning the effectiveness of physical activity for people with mental illness.

2.4 Research into the effectiveness of physical activity for people with mental illness

This section provides a critical summary of research into the effectiveness of physical activity for people with mental illness. It is structured in the following way: Firstly, different research study designs are described and classified regarding their strengths of evidence. Then, the search strategy and criteria for selection of studies for Table 2 are explained. Table 2 presents selected national and international research studies and their results. Finally, results are summarised concerning crucial topics.

2.4.1 Relevant research study designs

Health research, including mental health research, examines the biological, socio-economic and environmental factors that contribute to health, illness and death (Jacobsen, 2012). Health researchers use qualitative and quantitative research methods as well as a combination of both (mixed methods). Qualitative studies seek to understand the meaning to an individual (single case study) or a group (case studies or descriptive study) of a social phenomenon (Creswell, 2009). Some qualitative methods, such as grounded theory, aim to develop a theoretical explanation about the meanings, actions and relationships of people (Buetow, 2007). Regardless of the aim, qualitative research methods include interviews, observations and note-taking (Buetow, 2007). Interviews can be individual or in groups and focus on health related topics.

Quantitative methodologies test objective theories by examining the relationship among variables using statistical procedures (Creswell, 2009). Quantitative studies can be differentiated between intervention and observational studies (Buetow, 2007). *Intervention* studies are with (experimental study designs) or without (quasi-experimental study designs) random allocation (Buetow, 2007). Experimental studies include randomised controlled trials (RCTs). RCTs control measurement conditions by constructing two or more groups, usually an experimental (intervention) and one or more control group(s) (placebo or other concurrent treatments). Allocation to the groups is randomised to ensure that the

groups only differ on the intervention allocated (Buetow, 2007). Quasi-experimental designs also include time-series studies (Buetow, 2007). Time-series studies do not have a control group and test effects of an intervention by comparing pre-test with post-test measures. This type of quasi-experimental design is sometimes also referred to as a pre-experimental design because of the low scientific strengths of evidence (Vandiver, 2009).

A single subject experimental design can be used as an alternative to evaluate effects of interventions. In single subject research designs subjects serve as their own control, because they are assessed repeatedly before (baseline), during and after (reversal) the intervention (Marczyk, DeMatteo & Festinger, 2005). According to Marczyk et al. (2005), when results are stable in each of these phases and improved during intervention, then effects are likely caused by the intervention.

Observational studies are, for example, survey studies which examine people's behaviours, attitudes or opinions using questionnaires (Marczyk, DeMatteo & Festinger, 2005). This is called a cross-sectional study (Buertow, 2007).

2.4.2 Classification of studies

Health research studies can be classified regarding their level (strength) of evidence (Vandiver, 2009; Jackson, Fazal & Giesbrecht, n.d.). For quantitative studies, large (in sample size) randomised controlled trials (RCT) with clear cut-off results and meta-analytic reviews are regarded as the highest level of evidence with low error (Landers & Arent, 2007), followed by quasi-experimental studies with one or more control groups. Although quasi-experimental studies without control groups cannot provide convincing evidence of causality, they can offer clinical utility (Vandiver, 2009). The highest level of evidence from qualitative studies is provided by generalisable conceptual studies (studies which proceeded from previous studies), followed by descriptive studies and case studies (Jackson, Fazal & Giesbrecht, n.d.). The strengths of evidence of a mixed methods study depends on the method used for each part of the study (Jackson, Fazal &

Giesbrecht, n.d.). Table 1 provides an overview of levels of the evidence continuum.

Table 1: Levels of the evidence continuum

Level of evidence	**High**	**Medium**	**Low**
Examples of quantitative studies	• Experimental studies with random allocation (RCTs) and clear cut-off results • Meta-analytic/ systematic reviews	• Quasi-experimental studies with control groups • Single subject studies	• Quasi-/pre-experimental studies without control groups
Examples of qualitative studies	• Meta-ethnographies • Generalisable conceptual studies	• Descriptive studies • Case studies	• Single case studies

2.4.3 Search strategy and criteria for selection

Research studies for the following two sections were found by searching the following databases electronically: CINAHL, Google Scholar, Index New Zealand, MedLine, PubMed, PsycINFO, The Cochrane Library and SPORTdiscus. Key words used were related to physical activity (‘physical activity’ OR ‘exercise’ OR ‘sport’), mental health (‘mental health’ OR ‘mental illness’ OR ‘mental disorder’ OR ‘severe mental illness’) and the type of methodology (‘mixed methods’ OR ‘meta-analysis’ OR ‘qualitative’ OR ‘randomised controlled trial’ OR ‘systematic review’ OR ’interviews’). Reference lists from articles were also reviewed. Studies had to be published between the years 2000 and 2012; include participants aged between 18 and 65 with diagnosed mental illness; have physical activity as part of the intervention; and include physical and/or mental health measures.

2.4.4 Overview of selected studies

The rationale for the selection of the studies for the overview was to provide a broad spectrum of studies conducted with different:

(1) Levels of evidence (high, medium, low);
(2) Research designs (quantitative, qualitative, mixed methods);
(3) Settings (including New Zealand).

The overview is presented in Table 2 (pages 36 to 38). It reports the authors, locality of study, level of evidence, sample size, study design, measures, brief description of the results and strengths/limitation of the study. The studies are ordered according their level of evidence: starting with studies with high level of evidence (one meta-analysis/systematic review and one meta-ethnography, one RCT); then medium level of evidence (one mixed methods study, two qualitative studies); followed by low level of evidence (three quasi-experimental time series studies). Studies from Table 2 were included in the summary of findings from the literature in the next section.

2.4.5 Summary of findings from the literature

This section summarises the results of research into the effectiveness of physical activity on people with mental illness. The summary draws on studies of Table 2 and other selected studies meeting the search criteria. It considers the following topics: the impact of physical activity on mental and physical health; supervised versus non-supervised exercise; the role of professional support; group versus one-to-one interventions. The summary concludes with further research recommendations.

The effect of physical activity interventions on the mental health of people with mental illness

A growing body of both qualitative and quantitative research studies indicate that physical activity is associated with improved mental health, quality of life and well-being for people with mental illness. The results of the meta-ethnography of peoples' experiences with physical activity by Soundy and colleagues (2012)

Table 2: Overview of selected research studies on the effectiveness of lifestyle interventions for people with mental illness (presented in order of their level of evidence)

Authors, locality and level of evidence	**Sample**	**Design**	**Measures**	**Results**	**Strengths/Limitations**
Lawlor & Hopker (2001). Worldwide High	Fourteen RCTs with clinically depressed patients	Systematic review and meta-analysis	Standardised mean comparison in Beck depression inventory score between exercise and no treatment and between exercise and cognitive therapy	When compared with no treatment exercise reduced symptoms of depression. Similar effects of exercise and cognitive therapy	Strengths: Review/analysis of RCTs only Limitations: authors concluded effect cannot be determined because of methodological problems in the studies reviewed (e.g. small sample sizes, short follow-ups)
Soundy, Kingstone & Coffee (2012). Worldwide High	8 qualitative studies that report on individual experiences with physical activity interventions of clients with mental illness	Meta–ethnography: review and synthesis of selected qualitative studies	Themes which emerged from these studies	Three themes were presented: (1) Psychological attributes (aspects of exercise that influenced the experience: Identity, Control, autonomy, dependency); (2) Barriers (aspects that prevented uptake of exercise: for example location, access, support, finances); (3) Facilitators (aspects related to successful uptake of activity: location, positive experience, physical and psychological benefits)	Strengths: So far first and only published review of qualitative studies about the experiences of physical activity for people with mental illness Limitations: Relatively small number of studies
Babyak, Blumenthal, Herman et al. (2000). USA High	156 adults with major depressive disorders, 133 follow-up assessments were available (85.6%)	RCT, participants were randomly assigned to a four months course of exercise, seraltine therapy or a combination of both	Depression assessment by clinical interview, Hamilton Rating Scale of Depression, Beck Depression Inventory. Assessments were compared at baseline, after 4 and 10 months	After four months patients of all three groups showed significant improvements. After 10 months, the exercise only group had significantly lower relapse rates (9%) than the seraltine group (38%) and combination group (31%)	Strengths: Relatively large sample sizes, including for follow-up assessments, amount of clinical assessments Limitations: Voluntary participation, only one follow-up assessment 6 months post treatment, lack of independent verification of follow-up assessments

Authors, locality and level of evidence	Sample	Design	Measures	Results	Strengths/Limitations
Eldridge, Dawber & Gray (2011): Mixed-methods evaluation of a one year adaption of "Well-being Support Programme" (WSP). UK Medium	Quantitative: 782 patients at entry, 159 at completion (20%) Qualitative: six interviews of practitioners	Quantitative: comparison of entry-exit data Qualitative: open-ended questions, thematic analysis	Quantitative: Weight, BMI, blood pressure, smoking status, alcohol use, substance use, self-esteem, physical activity levels, diet Qualitative: Practitioners experiences regarding effect on practice and patients	Quantitative: significant changes were only made in BMI Qualitative: four major themes were identified: (1) making a difference; (2) feedback form patients; (3) working holistically to promote recovery; (4) modification of the programme	Strengths: Mixed methods design, large sample size Limitations: No control group, interviews with practitioners only, high drop out rate
Hodgson, McCulloch & Fox (2011) UK Medium	17 people with mental illness from groups within a physical activity programme	Qualitative study: semi-structured interviews, thematic analysis	Perception about programme participation, its benefits and drawbacks	Effects of medication and mental illness were indentified as main barriers to participation; the support of staff, structure of sessions was the most enabling factor to participation. Benefits of physical activity on mental well-being, physical health and social opportunities were indentified	Strengths: Large amount of interviews Limitations: Voluntary participation in interview, which may not provide full scope of experiences
Shiner, Whitley & Van Citters (2008): "InShape"-Individualized health promotion intervention for adults with mental illness, qualitative study. USA Medium	Eight interviews	Semi-structured interviews, appreciative inquiry: interviewees were selected on the criteria of which clients were most successful regarding weight loss.	Best aspects of programme, personal attributes, core factors that made the programme successful, suggestions for programme improvements	Individualised intervention promoted engagement in the programme, financial support and residential proximity was important for accessing fitness facilities. Health mentors and other participants were crucial to motivation to exercise. Interviewees reported a positive influence of physical improvements on their mental well-being	Strengths: Interviews of participants Limitations: Interviewees were only successful participants

Authors, locality and level of evidence	Sample	Design	Measures	Results	Strengths/Limitations
Smith et al., 2007 a,b: "Well-being Support Programme" (WSP). UK Low	966 participants with severe mental disorders at entry, 772 at completion (80%)	Two years intervention of nutrition and lifestyle advice, smoking cessation, physical activity groups, entry – exit data were compared	Weight, BMI, blood pressure, smoking status, alcohol use, substance use, self-esteem, physical activity levels, diet	Significant improvements were made in levels of physical activity, smoking rates, diet and self-esteem. 42% of the patients have lost weight, however, no significant changes in mean BMI	Strengths: large sample size, high amount of physical and mental health measures Limitations: No control group
Van Citters, Pratt, Jue, Williams, Miller, Xie & Bartels (2010): "InShape", quantitative study. USA Low	66-57 (depending on assessment period)	Evaluation of data collected every three months after enrolment in programme	Physical activity and dietary behaviours, weight, BMI, blood pressure, waist circumstances, psychological functioning and symptoms	Reduction in waist circumstances, no change in BMI, improvement of satisfaction with fitness and mental health functioning, decrease of negative symptoms	Strengths: Validated physical and mental health measurements Limitations: No control group, Relatively small sample size
Gawith, (2009); Fletcher (2008): Comcare's "ActiveLife" and Pacific Trust's "Healthy Pacific" Lifestyle Programme. New Zealand Low	People who experienced mental illness, 10 to 16 participants in different programme locations	16 week programme including activities, nutrition and healthy lifestyle education	Weight, waist measurements, blood pressure, heart rate, BMI, fitness levels, nutrition and activity survey, Beck Depression Inventory, Coppersmith Self-Esteem Survey	33% to 66% (depending on programme location) of participants lost weight, BMI decreased 66% to 83%, 73% improved self-esteem, 100% decreased depression symptoms, significant improvements of nutrition and exercise levels for most participants	Strengths: Use of validated physical and mental health measures Limitations: No control group, small sample sizes

showed that physical activity had a positive impact on their mental health. This included a reduction in symptoms such as depression and anxiety. Two meta-analytic reviews and analysis of RCTs on the effectiveness of exercise as an intervention for clinically depressed people concluded that physical activity interventions reduced depressive symptoms (Lawlor & Hopker, 2001; Krogh, Nordentoft, Sterne & Lawlor, 2011). However, methodological weaknesses of most of the reviewed RCTs were identified by the authors as a limitation and they concluded that results should be treated with caution and that more research is needed. Another meta-analysis of 58 RCTs on the antidepressant effect of exercise, using a more extensive search procedure with more moderating variables than the previously mentioned reviews, concluded that participants in exercise treatment had significantly lower depression scores than the control groups (Rethorst, Wipfli & Landers, 2009). Of the 16 reviewed trials with clinical populations, 12 showed that participants in the exercise treatment group recovered or at least improved.

Compared with the amount of research on the effects of exercise on depression, studies on people with anxiety disorders were less frequent. One published meta-analysis of 49 RCTs concluded that exercise is associated with greater reductions in anxiety than other forms of anxiety-reducing treatments (Wipfli, Rethorst & Landers, 2008). This is consistent with results of previously published meta-analyses and systematic reviews (Petruzzello, Landers, Hatfield, Kubitz & Salazar, 1991; Guszkowska, 2004; Stroehle, 2008). However, the anxiety reducing effect of exercise was only modest and studies often included people without a clinically diagnosed anxiety disorder.

Physical activity also potentially contributes to improved quality of life in the areas of physical functioning, well-being, stress management and enjoyment (Berger & Tobar, 2007). According to the review of the literature by Berger and Tobar (2007), regular, rhythmical, repetitive and non-competitive types of physical activity in a social environment have the most potential to increase quality of life. This seems also to apply for people with mental illness. For example, the study by Acil, Dogan and Dogan (2008) showed an improvement of quality of life as an effect of low to moderate aerobic exercise in patients

with schizophrenia. This is consistent with the results of a large German cross-sectional survey on the association between physical exercise and quality of life among people with mental disorders. This survey showed that higher levels of physical activity were related to higher quality of life, regardless of socio-demographic characteristics (Schmitz, Kruse & Kugler, 2004).

The effect of physical activity interventions on physical health for people with mental illness

Results of studies comparing physical health changes as a result of interventions for people with mental illness were ambivalent and often statistically not significant. For example, when comparing the two quantitative evaluations of pre-, post intervention assessment results of the Well-being Support Programme (WSP) in the UK, the participants of the study by Smith et al. (2007) showed no significant changes in BMI, but in activity levels, diet and smoking rates, whereas the participants of the study by Eldridge at al. (2011) showed significant changes only in BMI. According to the systematic review and analysis of published research literature on exercise and nutrition programmes for people with mental illness by Bartels and Disletes (2012), best outcomes regarding weight loss were achieved in programmes which combined nutritional education with exercise. Programmes which provided information only about healthy lifestyle or focused only on exercise resulted in less weight loss. However, weight loss alone is not necessarily an indication of improved physical health and therefore, given the state of research, no firm conclusions can be drawn.

The effect of professionally led physical activity interventions

Professional support provided by qualified staff appears to be an important factor in participation in exercise programmes for people with mental illness (Breier & Strauss, 1984; Richardson et al., 2005). Studies reported that the personal attributes, skills, knowledge, empathy and sensitivity of support staff is critical in order to overcome discomfort, and provide opportunities for learning new skills and handling challenges (Hodgson et al., 2011; Shiner et al., 2008, Soundy et al., 2012). Richardson et al. (2005, p. 327) state: “Enthusiastic,

knowledgeable, and supportive exercise leaders are as important as the actual exercise prescription itself".

Studies showed that professionally led interventions were most beneficial when they were tailored to individual circumstances (such as health status, barriers to exercise and fitness levels) and used behavioural modification principles (such as goal setting, social support, prompting, self-monitoring, providing feedback on performance, goal review, motivational interviewing) (Bock, Marcus, Pinto & Forsyth, 2001; Greaves, Sheppard, Abraham, Hardeman, Roden, Evans & Schwarz, 2011; Marcus, Bock, Pinto, Forsyth, Roberts & Traficante, 1998; Richardson et al., 2005; Shiner et al., 2008). Regarding duration of interventions, two systematic reviews concluded that programmes of around 12 weeks duration achieved the best outcomes regarding both mental and physical health (Stroehle 2008; Bartels & Desilets, 2012). However, conclusions about the optimum duration of interventions need to be treated with caution, because the intervention duration of most studies was only between eight to fourteen weeks (Stroehle, 2008). Higher number or frequency of contacts (for example three times per week) can improve the effect of interventions for physical health changes (Greaves et al., 2011). However, follow-up data collected post intervention shows that the longer the period after intervention completion, the lower the adherence (Buckworth & Dishman, 2007).

The effect of group versus one-to-one interventions

Research indicates that group activities improved mood and cognitive functioning, provided opportunities for social interaction (reduced isolation) and stress relief, helped in relaxation and managing of mental illness symptoms as well as in regaining a sense of normality, purpose and routine (Carta, Hardoy, Pilu, Sorba et al., 2008; Hodgson, Carless & Douglas, 2010; McCulloch & Fox, 2010). Group activities are more cost-effective than individual support because of the higher client-staff ratio. An important factor to consider is the distance to the facility. A qualitative study about a leisure facility based healthy lifestyle programme for people with mental illness showed that the convenience of the facility played a major role in programme attendance (Shiner, Whitley & Van

Citters, 2008). Therefore, facility based programmes are more likely to be used by people who live in proximity to the facility.

To participate in group activities may be difficult for some clients because of the expense of transport, accessibility or lack of support (Hodgson et al., 2010). A support person to provide encouragement and support with transport can be helpful to overcome these barriers (Soundy et al., 2012). A time limited individualised physical activity programme can be helpful to re-introduce clients to exercise, build confidence, and find options for appropriate group activities within the clients' community.

To summarise, physical activity can reduce symptoms of anxiety and depression. Group activities are generally superior to one-to-one support because they promote social inclusion and are more cost-effective. One-to-one support, however, may be necessary for transport, encouragement and resolving initial barriers to engaging in (group) physical activities. Either way, interventions should be professionally led, tailored to the individual's needs and abilities, include behavioural modification strategies and combine education and exercise for best outcomes.

2.4.6 Further research recommendations

To strengthen the evidence of effectiveness of physical activity for people with mental illness, further research is needed. Ideally, this includes RCTs incorporating specific healthy lifestyle programmes and diverse mental health issues with large sample sizes and extended follow-ups to examine the long-term effects of interventions. More qualitative research is needed in order to explore peoples' perspectives of reducing barriers to exercise and opportunities to promote exercise adherence. For example, the PAM could be tested on its applicability for people with mental illness and adapted accordingly.

There is only limited research conducted in New Zealand on the outcomes of a healthy lifestyle and physical activity programme for people with mental health

issues. To the best of the researcher's knowledge, within New Zealand so far only two studies have been conducted and published about that topic; one from Gawith (2009) and the other from this researcher (Grueber, 2010). Both studies took place in Christchurch, were based on a comparison of pre-post programme assessment results without a control group and relatively small sample sizes (less than 30 people). No RCT, mixed-methods or qualitative studies have been published. Furthermore, worldwide no qualitative or mixed-methods study has been published about outcomes and perspectives of participants of an individualised physical activity programme for people with mental illness which was conducted by the support professional herself/himself.

2.5 Theories about the impact of physical activity on mental health

The benefits of exercise on physical and mental health are well documented. That exercise is important for physical health has been known since ancient times, as the quote by Greek philosopher Plato (428-348 BC) illustrates: "Lack of activity destroys the good of every human being, while movement and methodical physical exercise save and preserve it" (as cited in Draper, 2012). The WHO (2006) recommends exercise to lower high blood pressure, cholesterol, body weight and risk of cancer. As described previously, exercise also seems to reduce symptoms of anxiety, depression and improves perceived quality of life and well-being. The following paragraphs summarise briefly selected theories from different scientific backgrounds (such as Psychology, Physiology) which explain the correlation between physical activity and mental health.

Social-cognitive Theory (SCT)

The SCT is an integrative theoretical framework to explain and predict behavioural changes, developed by Bandura (1977). A key component of SCT is self-efficacy (confidence in one's own ability). According to SCT, self-efficacy is based on four sources of information: (1) *performance accomplishments* (based on personal mastery experience; for example after

completion of a workout), (2) *vicarious experience* (modelled behaviour; for example watching others exercising), (3) *verbal persuasion* (through suggestion, instruction; for example learning how to swim) and (4) *emotional arousal* (emotional response; for example enjoying the scenery or company of others while exercising). The theory suggests that self-efficacy and mental health are related to each other, because people's perceived capability affects their level of stress, anxiety and depression (Bandura, 1989). SCT has been confirmed as reliable and valid by number of research studies and was used in a variety of health behaviour interventions (for example coping with stress, recovery from illness) (Strecher, DeVellis, Becker & Rosenstock, 1986).

Self-determination Theory (SDT)

SDT is a well researched and empirically validated theory of personality development and self-motivated behaviour change (Markland, Ryan, Tobin & Rollnick, 2005). The theory differentiates between autonomous (intrinsic) and controlled (extrinsic) regulation. Autonomous regulation is the conscious acceptance of the behaviour as being important to achieve important personal goals (Markland et al., 2005). According to SDT, autonomous motivation is essential for long-term maintenance of change and greater psychological outcomes (Deci & Ryan, 2008). In contrast, controlled motivation consists of external regulation such as reward or punishment (Deci & Ryan, 2008). If physical activity (or its effects) can be aligned with clients' goals and values, it can have positive effects on well-being (Markland et al., 2005). For example, improved fitness can enable a person to play more with her/his children, find work or competing in an event.

Theories of social interaction and social support

The social interaction hypothesis proposes that not only physical activity itself, but the social relationships and support involved in physical activity improve mental health. The results of the meta-ethnography of the perception of physical activity among people with mental illness concluded that social support and interaction positively affected participants' social confidence, enjoyment and general quality of life (Soundy et al., 2012). The study also found that building trusted relationships between staff and participants or

among participants was associated with a relief of mental illness symptoms, developing positive attitudes towards exercise and prolonged engagement.

Endorphin Hypothesis

There are several physiological hypotheses to explain the physical activity–mental health relationship. One well-researched hypothesis is the Endorphin Hypothesis. Endorphins are a neurotransmitter released during aerobic and high intensity resistance exercise. According to the hypothesis, which is supported by both animal and human research, endorphins-induced euphoria known as 'runners' high' has the effect of reducing anxiety and depression (Thoren, Floras, Hoffmann & Seals, 1990).

Physical activity promotion is often based on one or more of the above mentioned theories. The following section describes some examples of interventions from New Zealand and other countries.

2.6 Examples of national and international physical activity interventions

2.6.1 Levels of physical activity interventions

This section provides an overview of selected examples of national and international interventions for people both with and without mental health issues. Physical activity interventions can take place at different levels: at individual, community and population level (Stratton & Watson, 2009). The level depends on the setting and source of the intervention: individual based interventions offer tailored support for individuals on a one to one basis; community interventions are set in the community where individuals can participate (such as groups, clubs); and population based interventions range from media campaigns to city designs and public health policies/initiatives. Some interventions work at more than one level. For example, Green Prescription is a nationwide scheme implemented by the Ministry of Health

(n.d. c, d), prescribed by general practitioners and delivered by specialised professionals on a one-to-one and group basis. According to Murphy, Dougdill and Crone (2009), interventions are most effective when they take place on all levels. Interventions on only one level have only limited success.

2.6.2 Search strategy and selection criteria

There are many examples of physical activity interventions, both nationally and internationally; however, only a few have been scientifically evaluated with published results. The described case studies were chosen because they provide an overview of different approaches on different intervention levels. Information was drawn from the internet (websites of service providers), Table 2 (Section 2.4.3) and the knowledge of the researcher.

The first section focuses on interventions from New Zealand, starting with population, then community, followed by individual based interventions and combinations of those. The second section pays attention to community and individual based interventions from other countries. These include the 'InShape' Programme from the USA and the Well-being Support Programme (WSP) from the UK. Both have been evaluated in several research studies.

2.6.3 Physical activity interventions in New Zealand

Population interventions

The main physical activity population health promotion intervention implemented in New Zealand was HEHA (Healthy Eating-Healthy Action) launched in 2004 by the New Zealand government. HEHA's objectives were to improve nutrition and physical activity levels within the New Zealand population in order to limit or prevent obesity and its related health issues (Ministry of Health, 2008). One campaign of HEHA was 'Push Play' initiated by Sport New Zealand (formerly the Hillary Commission, then SPARC) in 1999 (Bauman, McLean, Hurdle, Boyd, van Aalst & Carr, 2003). Push Play was a media-led intervention aiming to increase physical activity levels within the

New Zealand population. A cross-sectional population survey conducted between 1999 and 2002 showed significant increases in awareness of the Push Play message, but no sustained changes in physical activity levels (Bauman et al., 2003). The authors point out that it may take much longer than three years for such campaigns to achieve sustained effects. However, according to the latest New Zealand Health Survey published by the Ministry of Health in 2012 there has been no change of physical activity levels since the 2002/03 and 2006/07 surveys. The Push Play initiatives ceased in 2008 and in 2012 were replaced with the 'Active Communities' initiative aiming to support innovative community based approaches to reduce barriers to participate in sport, emphasising young females, older adults and communities with low activity levels (Sport New Zealand, n.d.).

In terms of targeting the mental health benefits of exercise, however, arguably the most influential project in New Zealand has been the National Depression Initiative fronted by Sir John Kirwan in collaboration with mental health professionals, supported and funded by the Ministry of Health (National Depression Initiative, n.d.). A key part of the initiative is the internet based self-management programme 'The Journal'. It contains an assessment of current mental health status and based on the result it can make individualised recommendations for possible interventions. A website with information about depression, television advertisements and a free telephone helpline are also part of this intervention. Daily physical activity is recommended to 'get through' depression. This initiative is a fine example of a population based intervention combined with individualised phone and online support. It raised awareness about mental illness among the population. An evaluation of the effectiveness of the 'The Journal' for users is currently underway. Limitations of the initiative are that it focuses only on mild to moderate cases of depression and anxiety and requires internet access.

Another example of a population (and community) based intervention to increase physical activity levels of people with disabilities (including people with mental illness who are on a benefit) and low to middle income is the Community Services Card issued by Work and Income (n.d.) and the KiwiAble

Leisure Card by the Christchurch City Council (CCC) (n.d.) for the Canterbury region. These cards offer discounted access to some leisure facilities and activities. For example, card holders receive a 25% discount at the CCC leisure centres.

Population and community intervention: The Mental Health Foundation

The purpose of the Mental Health Foundation (n.d.) is to promote positive mental health and well-being. The Mental Health Foundation is contracted by the Ministry of Health to communicate mental health related issues and well-being to the New Zealand public and workforce by conducting research, producing information, developing policies, social marketing and public education (Mental Health Foundation, n.d.). Most of the work of the Foundation is delivered in local communities by seminars, forums and media campaigns.

Core of the Foundation's work is the promotion of mentally healthy behaviour, the 'Five ways to well-being': connect, give, take notice, keep learning, be active. The five ways of well-being are a summary of the evidence collected for promoting well-being by the Foresight Project on Mental Capital and Well-being in the UK (n.d.). While all five ways of well-being equally contribute to well-being of individuals, for the scope of this thesis only the 'Be Active' component will be considered. The Foundation's definition of 'Be active' is: "Do what you can, enjoy what you do, be active and move your mood" (Mental Health Foundation, n.d.). The Foundation's website provides several examples of possible activities for individuals, families, communities, workplaces, schools and health professionals.

Population, community and individual intervention: Green Prescription

Green Prescription is a nationwide physical activity promotion programme funded by the Ministry of Health. "A Green Prescription (GRx) is a health professional's written advice to a patient to be physically active, as part of the patient's health management" (Ministry of Health, n.d. c). If a client wishes to have ongoing support, a qualified and experienced physical activity coach assesses lifestyle and activity levels, identifies barriers to physical activity and establishes a tailored plan of activities. Consultations with the coach can involve

monthly telephone calls or face to face meetings for three to four months, or group support in a community setting for three to six months. Clients' progress is reported back to the referring health professional (Ministry of Health, n.d. d).

Research indicates that such interventions improved physical activity levels and quality of life over a 12-months period (Elley, Kerse, Arrol & Robinson, 2003). A survey conducted by the Ministry of Health (2012d) of over 3100 respondents revealed that 55% percent of patients were more active and 73% felt healthier six to eight months after receiving the Green Prescription than before. Prompting and reminders delivered by the support person increased effectiveness. Exercise groups, brief advice delivered in person, by phone or mail proved to be more cost-effective than interventions requiring direct supervision or instruction, including for example gym-based exercise classes or instructor-led walking programmes (Garrett, Elley, Rose, O'Dea, Lawton & Dowell, 2011). Furthermore, the combination of Green Prescription and phone based counselling has been shown to be beneficial for the management of depression as a complementary treatment to antidepressants, smoking cessation and physical activity promotion (McClure, Catz, Ludman, Richards**,** Riggs & Grothaus, 2011; Patel, Schofield, Kolt & Keogh, 2011). Green Prescriptions, however, may have limitations for people with mental illness because they require high levels of independence regarding transport and motivation.

Community intervention in Christchurch: Step Ahead Trust

Step Ahead Trust provides social, educational and recreational activities for people with mental illness, including walking, cycling, swimming and tennis. The aim of Step Ahead is to enhance members' well-being and support their recovery (Step Ahead Trust, n.d.). Step Ahead Trust sends a monthly newsletter to members with information about available activities. It is the individual's responsibility to register interest in an activity and to organise transport to and from each activity, which might be a barrier for some people. For people who prefer individual activities it may also be a disadvantage that Step Ahead only offers group activities.

No research has been conducted to evaluate the outcomes. Testimonials appearing on the Step Ahead Trust website contain a strong positive bias. Research conducted on similar projects indicates that such interventions have a positive impact on mental well-being and social inclusion (Soundy et al., 2012).

Community and individual interventions in Christchurch: Comcare Trust's (1) ActiveLinks and (2) ActiveLife

(1) ActiveLinks is a provider of tailored activity programmes for people with mental illness over the age of 18 (ActiveLinks brochure, n.d.). ActiveLinks offers two different options: the first option is an individualised three to six months programme, which supports people to achieve recreational goals (ActiveLinks brochure, n.d.). Assessments are carried out at entry and completion of the programme and include a treadmill fitness test, girth measurements, a mood assessment and a voluntary weight/body mass (BMI) calculation. Regular reviews of progress during the programme and follow-up reviews are carried out once a month for a period of three months after completion. ActiveLinks also offers group activities such as aqua jogging, circuit classes, walking and tennis. These groups meet one to three times per week at particular places, facilities and times. Participants usually have to organise transport to these groups themselves. There are so far no published studies about the effectiveness of the intervention.

(2) The ActiveLife Programme is a four-month health and well-being programme designed for and accessible to people who are mental health service users. The programme contains three domains: *recreational* (different fitness activities), *facilitation* (enhanced positive group dynamics) and *nutrition* (Fletcher, 2008). Participants meet once a week for three hours. Every session has a different goal/purpose and includes physical activities, discussions and education about various topics such as nutrition, physical well-being, motivation, self-esteem or mental health issues (Fletcher, 2008). The programme included pre- and post measures and surveys. The programme has been evaluated and results were published by Fletcher (2008) and Grawith (2009) (see table 2). The positive results reinforce the importance of combining education exercise approaches in a social environment.

2.6.4 Physical activity interventions in other countries

There are a number of international examples of community and individual physical activity interventions. Two of these are described below, because they demonstrate evidence of effectiveness and widen the scope of possible approaches.

USA: Community and individual intervention: InSHAPE (Self Health Action Plan for Empowerment)

The InSHAPE programme is an award winning "motivational health promotion and physical fitness programme that helps adults with serious mental illness improve their dietary habits and physical fitness" (Jue, 2011, p. 2). Participants pay a small monthly membership fee for access to local fitness facilities, such as gyms and dance clubs. The initial assessment includes a questionnaire regarding dietary intake and readiness to change; a strength test and a treadmill walk test. Health mentors teach basic cooking, food shopping, and menu-planning skills. Participants are provided with a monthly programme calendar with activities in the community from which to choose. Furthermore, participants are invited to regular celebrations of achievements and progress (Jue, 2011). A pilot evaluation (Van Citters et al., 2010) and a qualitative study (Shiner et al., 2008) have researched the programme with encouraging findings, including improved perceived fitness levels, mental and physical health (table 2). It needs to be taken into consideration that the InSHAPE programme is highly subsidised by donations to keep fees low. However, there are aspects of the programme which may be relevant to New Zealand; for example providing an event calendar, celebrating achievements, and teaching of cooking, shopping and menu planning.

UK: Community and individual based intervention: The Well-being Support Programme (WSP)

WSP is a nurse-led screening service which aims to identify physical health problems, promote treatment adherence, encourage lifestyle change, provide support and advice for carers and collaboration with other services for patients with severe mental illness (Eldridge, Dawber & Gray, 2011). It is delivered over

two years and follows five steps with a minimum of six face-to-face sessions (Eldridge et al., 2011):

1. Clients are invited to participate in WSP;
2. Assessment of physical health and lifestyle factors to examine cardiovascular risk factors (BMI, blood pressure, smoking, alcohol, substance use, physical activity, diet, self-esteem);
3. Results of assessments are fed back to client;
4. Clients are referred to an appropriate service (such as weight management or physical activity groups, specialist doctors);
5. Follow-up face to face sessions to complete assessments and evaluate outcomes.

At the weight management group clients are weighed regularly and receive advice and information. The physical activity groups include bowling, badminton, walking and swimming and are delivered by the nurses/mental health practitioners (Eldridge et al., 2011). Research about WSP reported ambivalent outcomes: Smith et al. (2007) found that participants in the programme made significant changes in their diet, physical activity levels, smoking rates and self-esteem, whereas Eldridge et al. (2011) were able to show significant changes only in BMI (table 2). None of the studies had control groups. Therefore, to draw conclusions about the effectiveness of the programme more research is needed.

2.7 Summary

In this thesis, mental illness is seen in a systemic, holistic way and a mental health diagnosis does not determine a person. Physical activity is defined as incidental activities such as gardening, whereas exercise is more intentional and includes, for example, sports. People with mental illness have often to overcome several barriers to engage in physical activity. This includes, for example, medication, socio-economic circumstances and lack of support.

Research indicates a positive impact of physical activity for people with mental illness on their mental health and well-being, in particular when activities are tailored to the individual, strategies to overcome barriers are considered and appropriate support is available. Physical activity interventions are most effective if they take place on different levels: population, community and individual level. New Zealand provides a wide range of interventions at all levels. Christchurch's mental health services offer several community and individual interventions. The ABE Programme is an individual physical activity intervention that relies on available resources within the community, such as Step Ahead, ActiveLinks and Green Prescription. In addition, other resources can be used, for example, booklets, brochures and flyers published by the Mental Health Foundation or Ministry of Health. A 25% discount to enter leisure facilities for holders of a Community Services Card helps people on low incomes or on benefits to use these facilities. There is a need, however, for additional support. At a population level, for example, a 50% discount instead of 25% to enter leisure facilities would make it more affordable for people on low income or benefit. At a community level, an increased number of local group activities would improve the likelihood that people with mental illness will participate. At the individual level, more specialised support workers are needed in order to meet the potential growth in demand and to complement community and population interventions.

3. The organisational setting

3.1 Introduction

This chapter provides an overview of the organisational setting for this study. The Activity Based Experience (ABE) Programme is a community mental health service of the non-government organisation (NGO) Richmond Services Limited. The programme is funded by the Canterbury District Health Board (CDHB). Thus, this chapter briefly introduces the mental health services of the CDHB. It also provides an overview of the NGO Richmond Services Limited, the ABE Programme and a description of the 'Outcomes Framework', which is important because it determines the service delivery of the ABE Programme.

3.2 The Canterbury District Health Board's mental health services

Key responsibilities of District Health Boards (DHBs) are to plan the direction of future health policies and fund health and disability services (including many NGO health services) (Ministry of Health, 2003). Thus, DHBs have a very strong relationship with NGOs. Many community mental health services in Canterbury, including the ABE Programme, are delivered by NGOs and contracted by the CDHB. For the Canterbury region NGOs deliver a wide range of mental health services, such as residential, mobile community support and respite services. The CDHB itself provides specialised in- and outpatient mental health services. Inpatient services are located in two hospitals based in Christchurch and outpatient services include, for example, an early intervention service for youth and a Māori mental health service. CDHB's outpatient clients work with community case managers whose role is to complete assessments, provide ongoing case management and crisis resolution (Canterbury District Health Board, 2012). Case managers often refer their clients to other services, including NGOs and the ABE Programme.

In 2012 the CDHB published the ‘Adult Mental Health Services: Direction of Change’, which represents a new service model, organisational structure and service functions. This document can be seen as the regional adaption of the Blueprint II. A major change will be that services will be expected to work from a shared treatment plan, aiming to ensure a better flow of information between all services involved, including NGOs (Canterbury District Health Board, 2012). Other developments include fast and efficient access to appropriate services. One example is the ‘Community Support Worker Access Pathway Group’ (CAP) (Canterbury District Health Board, n.d.). CAP was established as a response to the earthquakes in Christchurch in 2011 in order to avoid delays accessing community support services. CAP is a group of representatives from NGO providers who manage referrals from GPs or case managers for community support, home based support and carer support. CAP has continued to grow as more NGOs participate in weekly meetings.

3.3 Richmond Services Limited and the ABE Programme

3.3.1 Richmond Services Limited

Richmond is one of the largest NGOs in New Zealand and part of the world wide network of Richmond Fellowship which first established itself in New Zealand in 1978. The organisation has changed its name several times over the past few years from Richmond Fellowship, Richmond New Zealand Trust Limited to its current name, Richmond Services Limited. The original purpose of the organisation was to provide services for young adults with psychological and social needs. Since then, Richmond has expanded its services to include people of a wider range of ages and is now a nationwide provider of various community and residential support services for people of all ages. It operates with an annual turnover of approximately $30 million and 500 employees (Richmond New Zealand, n.d.).

The vision of Richmond is to be 'Partners in Health and Well-being', with its overarching goal is to improve clients' well-being and quality of life, from both physical and mental health perspectives (Richmond New Zealand, n.d.).

The 'Outcomes Framework', which was set up in 2012, specifies the practice of services. It can be described as 'Intentional Practice' (IP) (Richmond New Zealand Trust, 2011a). IP means all services need to be *person-centred* (providing intentional services for the client), *evidence informed* (based on research, past experiences, shared expertise, expert opinion, client relevance and acceptability) and *outcomes focused* (planned, purposeful actions directed towards clients' goals).

3.3.2 The ABE Programme

The objectives of the ABE Programme are to provide an individualised and tailored physical activity service for people aged 16 to 65 with a diagnosed mental illness. The service is community-based, socially inclusive, client-centred, goal orientated and strengths based (Ministry of Health, 2009). The main theoretical foundation of the programme is the community mental health service philosophy 'recovery', which is based on a holistic and strengths based approach to mental illness. 'Recovery' will be covered in more detail in the following research methods chapter (the theoretical framework of this study).

The duration of the initiative is approximately three months. Activities depend on the abilities, needs and requirements of the clients. A specialised community support worker (CSW) provides the service. The programme involves an assessment of certain physical and mental measurements at entry, exit and six weeks post exit (Appendix 1). The results of these assessments are part of this study. At completion of the programme clients are encouraged to complete a satisfaction survey, which is voluntary and confidential.

The ABE worker meets with the client usually once each week for an individual session aiming to engage clients in physical activities and to create the habit of

exercise. To develop and establish a habit takes about one month, according to Tobias (2009). Towards the end of the programme possible ways to maintain behaviour are sought.

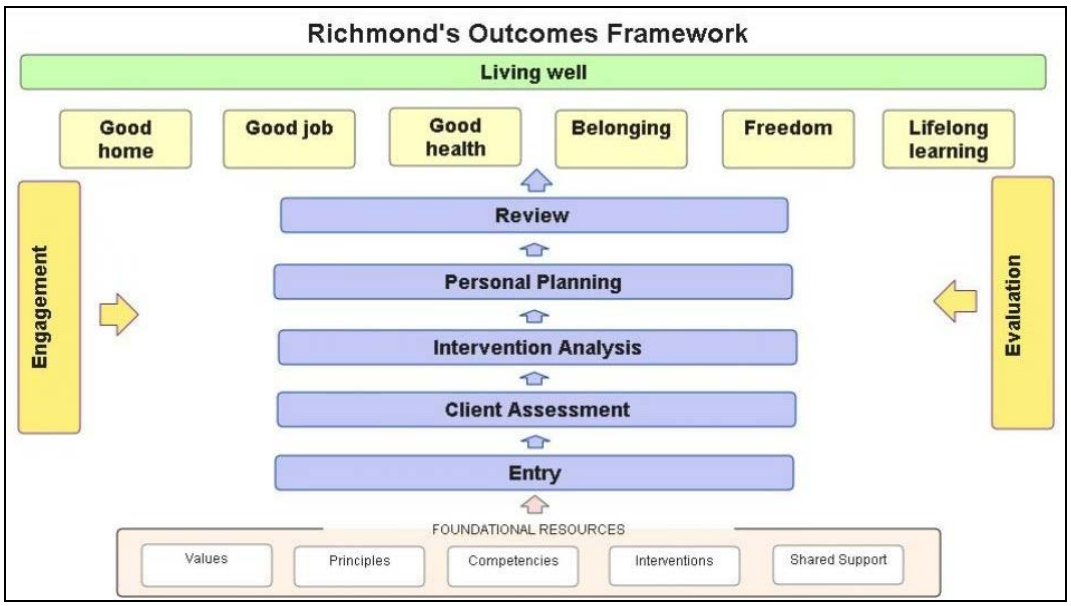
At any given time 10 to 15 clients are enrolled in the service. Referrals are mainly made from the Mobile Community Support Service (MCSS) and residential services within Richmond. However, an increasing number of referrals are made from case managers from the CDHB and other community mental health service providers in Christchurch. Self-referrals are also accepted.

3.4 The Outcomes Framework

3.4.1 Explanation of the Outcomes Framework

Because the Outcomes Framework is fundamental to Richmond services and therefore the ABE Programme, the following section explains the most important and relevant components (Figure 5).

Figure 5: The Outcomes Framework diagram (reproduced with permission of Richmond Services)



The foundational resources are the values, principles, competencies, interventions and shared support described in Richmond's 'Competency Framework', which underpins the Outcomes Framework (Richmond New Zealand Trust, 2011a). Some examples of these foundational resources are motivational interviewing, supervision, smoking cessation and shared support with other services. The overarching goal is to support clients to live well, which includes lifelong learning, freedom, a good job, belonging, good health and a good home (Richmond New Zealand Trust, 2011a).

In the centre of Figure 5 is the evidence informed service delivery, which is a step by step process from referral to exit. Regular reviews and evaluations of progress take place to ensure that goals are achieved.

A strengths based client assessment lays the foundation for a goal-orientated personal planning process which establishes long and short term goals. Part of the personal planning process is to identify all possible interventions which can contribute to achieving the goals (Richmond New Zealand Trust, 2011a). Action steps are established to achieve the goals.

Certain measures are used to assess whether clients made progress towards achieving their long-term goal and their overall quality of life (Richmond New Zealand Trust, 2011a). These measures are incorporated into the personal planning process and include the World Health Organisation's Quality of Life measure (WHOQOL-Bref) (WHO, 1996) and a goal attainment measure (i.e. no/little progress; good progress; achieved). The WHOQOL is based on four domains: *Physical* (e.g. activities of daily living, energy and fatigue, mobility); *Psychological* (e.g. body image and appearance, feelings, self-esteem, beliefs); *Social* (e.g. support, personal relationships); and *Environment* (e.g. freedom, participation in recreation/leisure activities). The WHOQOL-Bref used at Richmond is the New Zealand national version of the scale developed and validated by the New Zealand World Health Organisation Quality of Life (WHOQOL) Group at the Auckland University of Technology (AUT) (Billington, Landon, Kraegloh & Shepherd, 2010; Kraegloh, Kersten, Billington, Hsu, Shephard et al., 2012) (Appendix 2).

3.4.2 The alignment of the ABE Programme with the Outcomes Framework

All parts of the Outcomes Framework described previously are used within the ABE Programme. The overarching goal of the programme is to improve clients' physical and mental well-being and quality of life. The service is person-centred, evidence informed and outcomes focused.

Person-centred: The ABE Programme is person-centred because it places clients at the centre of the service and follows their guidance and goals. The ABE worker aims to establish a positive professional relationship.

Evidence informed: Evidence about the relationship between physical activity, physical health and mental well-being is well established (Section 2.4). As a common goal of clients is to lose weight, they can choose from different interventions. Evidence shows that regular cardio-vascular exercise and resistance training increase metabolism and energy expenditure and are therefore beneficial to achieve this goal.

Outcome focused: An outcome focused practice occurs when activities with the client are planned, purposeful and directed towards outcomes and goals important to the client (Richmond New Zealand Trust, 2011 b). Within the ABE Programme this is achieved through identifying long and short-term goals and choosing interventions which logically lead to achieving these goals. Regular assessments and reviews help to record clients' progress.

3.5 Summary

This chapter introduced the organisational setting for this study. In relation to mental health, the CDHB provides specialist mental health services, but its key roles are the funding of community based services (such as NGOs) and planning future directions of mental health policy. Richmond offers a wide range of services, of which the client-centred, outcome focused and evidence informed activity based ABE Programme is one. The Outcomes Framework is

the foundation of Richmond's service delivery. It proposes to use only practices which intentionally and logically lead to the achievement of clients' goals.

The ABE Programme is the only service of this kind at Richmond, similar to the Comcare Trust's ActiveLinks Programme in Christchurch, but otherwise unique in New Zealand. As mentioned earlier, very limited research has been conducted about the outcomes of a healthy lifestyle and physical activity programme for people with mental health issues in New Zealand. Furthermore, worldwide no published study could be found about a programme similar to the ABE Programme. Therefore, this study contributes to filling the gap of research in New Zealand and worldwide. The following chapters focus on the research methodology of this study and the presentation, discussion and conclusion of the results.

4. Research methodology

4.1 Introduction

The research objectives of this study are to identify outcomes and experiences of participants of the ABE Programme, barriers to engaging in physical activity, contributing factors for exercise adherence and recommendations for service improvements, policy and further research. A mixed methods study design was chosen to address the research objectives. This chapter provides an overview of the research methodology, which includes the theoretical framework for this study (the mental health service philosophy of 'recovery') and a description of the mixed methods study design. It also describes the ethical considerations and recruitment processes. Details of the research methods and procedures for the quantitative study are set out in Chapter 5 and for the qualitative study in Chapter 6.

4.2 Methodological approach

4.2.1 The theoretical framework: 'Recovery'

Theoretical frameworks underpin the research project. It is important to place the study in a theoretical framework in order to make sense of and explain the findings from a wider point of view (Gratton & Jones, 2004). As described previously, interventions for people with mental health issues changed dramatically from institutional to multiple community support systems. The underlying theory behind these changes is 'recovery'.

Recovery is a post-institutional service philosophy which emerged in the 1980s in the USA (Emey, n.d.). The aim of the philosophy is to widen the perspective of recovery from the absence of symptoms (*clinical recovery*) to the individual meaning of recovery (*personal recovery*) (Mental Health Commission, 2011). Anthony (1993, p. 15) defines recovery as "a deeply personal process of changing one's attitudes, feelings, goals, skills, and/or roles. It is a way of living

a satisfying, hopeful and contributing life even with the limitations caused by mental illness." Corrigan and Ralph (2005) point out that recovery can be an *outcome* (for example accomplishing important life goals, psychological well-being and improved quality of life) as well as a *process* (for example developing a positive identity, personally satisfactory meanings and taking personal responsibility). According to Jacobson and Greenley (2001), recovery requires *internal* conditions such as improving self-esteem and autonomy, and *external* conditions such as reducing stigma and ensuring accessibility of support (such as medication, mental health services) to be effective. Therefore, recovery is a pro-active, personal process with support and resources.

This study uses the theoretical framework of recovery to understand individual outcomes and experiences with a community mental health service. In order to assess the evidence of the effectiveness of interventions for recovery, scientific research methods for evaluating interventions are necessary. The following sections explain the purposes of health services research and introduce the research design for this study.

4.2.2 Health services research

As described previously (Section 2.4.1), health research examines biological, socio-economic and environmental factors that contribute to health, illness and death (Jacobsen, 2012). Health research includes health services research, which focuses on the relationship between health service delivery and needs of the population. It also includes the investigation of quality, efficiency, effectiveness and clients' perceptions of health services (Bowling, 2002). This study is about a mental health service and falls therefore into the category of health services research.

Health researchers use quantitative and qualitative study designs, or a combination of both (mixed methods study designs) to answer health related research questions. A mixed methods study design is the chosen method for this study because it aims to measure participants' outcomes as well as understand

their experiences with a health service. The following section introduces the mixed study design used for this study.

4.2.3 Mixed methods study design

"A mixed method study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research" (Creswell, Plano, Gutman & Hanson, 2007, p. 164). Therefore, mixed methods studies collect and analyse both narrative and numeric data (Teddlie & Tashakkori, 2009). 'Concurrently' means simultaneous use of qualitative and quantitative methods, whereas 'sequentially' means one method is used after the other (Morse, 2007). This study is concurrent with both data sets collected and analysed independently and then combined for interpretation (Sandelowski, 2000a).

The rationales for mixed methods research designs can be: *triangulation* (i.e. seeking for confirmation, similarities of results from different methods), *complementary*/*explanatory* (i.e. seeking for clarification, meaning and enhancement of results from one method with results of the other method), *development* (i.e. using the findings from one method to support the other method), *initiation* (i.e. discovering paradoxes and contradictions) or *expansion* (i.e. seeking to expand the breadths of research by using different methods) (Johnson & Onwuegbuzie, 2004; Greene, Caracelli & Graham, 2007).

One aspect of the mixed methods design for this study is complementary or explanatory because the qualitative study seeks for clarification, meaning and enhancement of the quantitative results (Kettles, Creswell & Zhang, 2011). Another aspect is triangulation to support quantitative results. Expansion is a further aspect, because it aims to extend the breadth and scope of quantitative data by using the qualitative descriptive method (Sandelowski, 2000b). Priority is given to the qualitative data because understanding participants' experiences with the ABE Programme is of primary importance for answering the research

questions. Thus, this study is an explanatory concurrent mixed methods design (Creswell et al., 2007), comprised of two components:

1. *Quasi-experimental study* for the quantitative component: comparing 30 assessment results at three time periods: entry, exit and follow-up (Chapter 5);
2. *Qualitative descriptive study* for the qualitative component: semi-structured interviews with 13 participants (Chapter 6).

4.3 Ethical considerations and recruitment process

4.3.1 Ethical considerations

Careful consideration of ethical principles is required for conducting research with human subjects. Ethical requirements include informed consent, self-determination, minimising harm, secure information storage and privacy/confidentiality (Henning, Hutter & Bailey, 2011). People with mental illness are considered by the National Ethics Advisory Committee (2012) as vulnerable participants (potential to be harmed, restricted capability to make independent decisions about participation or lack of ability to consent freely) and research involving them requires an ethical review by a human ethics committee.

Ethical approval was sought from the University of Canterbury Human Ethics Committee. Particular ethical consideration was given to the fact that the researcher was also the facilitator of the ABE Programme. This is important to address because the recruitment process had to be as unobtrusive as possible to ensure that potential participants did not feel obliged to participate in the study because of any prior relationship with the researcher. This issue was overcome by asking the Client Engagement Facilitator (CEF) of Richmond to send a letter on behalf of the researcher with information about both the quantitative and qualitative components of the study (Appendices 5 and 6) and consent forms for each of the components: consent for analysing assessment data (Appendix 3) and consent for being contacted by the researcher to participate in the interview (Appendix 4). A stamped self-addressed envelope was enclosed with the letter.

The information sheet stated that participants were free to withdraw from the study at any time without giving a reason. For the interviews participants were invited to have a support person present. They also were able to be referred, with their permission, to a mental health support worker. The information sheet informed participants that the research study was confidential; pseudonyms would be used and all identifying material disguised.

Richmond Services Limited approved the study via the Divisional Manager and Privacy Officer Martin Cole (Appendix 7). Ethical approval was granted by the University of Canterbury Human Ethics Committee on the 30 July 2012, reference number: HEC 2012/77 (Appendix 8).

4.3.2 Recruitment process

Recruitment for the study began once ethical approval was granted. The sampling and recruitment was purposive in order to maximise the opportunities to acquire information in relation to the research question (Suzuki, Ahluwalia, Arora & Mattis, 2007). Therefore, only clients who completed the ABE Programme were invited to participate in the study. This section firstly describes the process of recruitment, secondly the response.

The **recruitment process** occurred in three steps:
First step: A total of 44 addresses of participants who met the inclusion criteria could be identified and letters with the information sheet and consent form were sent to them by the CEF.
Second step: After two weeks a reminder letter was sent by the CEF to participants who did not response to the initial letter.
Third step: When a further 12 participants completed the programme before recruitment closed in February 2013, letters of invitation were sent to each of them.

In **response** to the initial letter, nine signed consent forms for the quantitative analysis and nine for participation in the interview were received (first

recruitment step). In response to the reminder letter, five consents were received for the quantitative component, and one for the interview (second recruitment step). A further seven participants consented to the quantitative analysis and three to participate in the interview after they completed the programme (third recruitment step). At closure of recruitment, 21 consents were received for the quantitative and 13 for the qualitative component. See Table 3 for details of the recruitment process.

Table 3: Number of consents received for each study component

	After first step	**After second step**	**After third step**	**Overall**
Quantitative	9	5	7	21
Qualitative	9	1	3	13

The response rate to the initial and reminder letters (first and second recruitment step) was 32% for the quantitative and 23% for the qualitative component of the study. The response rate to the third recruitment step was higher: 58% for the quantitative, 25% for the qualitative study component. The relatively low response rate to the first two recruitment steps is likely due to a number of factors: people had changed addresses, the big time gap between completion of the programme and sending the letters, and the potential reluctance of people with mental illness to engage in research.

4.4 Summary

Recovery was chosen as the theoretical framework for this study because it best reflects the service delivery approach of the ABE Programme. Recovery is a mental health services philosophy which focuses on the personal processes to overcome potential negative impacts of a mental illness. Research is necessary to provide evidence for the effectiveness of mental health services to support recovery. An explanatory concurrent mixed methods design was chosen for this study in order to analyse both outcomes and experiences of ABE Programme participants.

5. Quantitative study of participants' outcomes

5.1 Objectives

The objective of the quantitative component of this study was to analyse routinely collected mental and physical assessment results in order to detect changes that occurred during the programme and ascertain whether these changes were maintained after completion. Although the analysis of the results of a client satisfaction survey would have been useful for this study, this could not occur because that survey was completed anonymously and therefore it was not possible to link the surveys to people who provided consent for the use of their assessment data.

5.2 Research methods and procedures

5.2.1 Evaluation design and data collection

The quantitative study component involved the analysis of routinely collected physical and mental measures assessed at three time periods: at entry (pre-test), completion (post-test) and approximately six weeks post-completion (follow-up) of the programme. This study design can be described as a simple quasi-experimental pre-test-post-test reversal design (Marczyk, DeMatteo & Festinger, 2005). 'Simple' means that the study does not have a control group; 'reversal' means an assessment takes place after withdrawing the intervention (follow-up).

Physical measures included: systolic and diastolic blood pressure, weight and body mass index (BMI). **Blood pressure** was monitored from a health and safety perspective, because people with hypertension (high blood pressure) are advised to consult their GP before starting an exercise programme (American College of Sports Medicine, n.d.). However, various studies have shown that physical activity can lower blood pressure for people with hypertension after several weeks of moderate to vigorous intensity exercise (Cleroux, Feldman &

Petrella, 1999; Pinto, Di Raimondo, Tuttolomondo, Fernandez, Arnao & Licata, 2006; Sharman & Stowasser, 2009). The standardised norm for a healthy blood pressure reading for adults is 120/80mmHg; a result greater than 140/90mmHg is considered hypertension (National Heart, Lung and Blood Institute n.d. a).

Weight was measured for each participant in order to keep track of weight changes during the programme because weight loss is a common goal of clients.

BMI estimates the amount of body fat based on height and weight: BMI equals weight (kg) divided by height (m) squared. For the calculation of BMI the average height of the female and male adult New Zealand population published by the New Zealand Activity and Health Unit at the University of Otago by Wilson, Russell and Wilson (1993) was used: 1.77m for male, 1.65m for female. BMI categories include: underweight (<18.5), normal weight (18.5-24.9), overweight (25-29.9) and obese (>30). Results are not accurate for each individual, but provide an indication whether the client is overweight: A BMI of 25 or over increases physical health risk factors, such as Diabetes Type 2, hypertension, high blood cholesterol, certain cancers and cardiovascular diseases (National Heart, Lung and Blood Institute, n.d. b). Thus, weight loss (and the consequent decrease of BMI) would indicate a reduction of potential physical health risk factors if a client is overweight or obese.

Mental measures included: Rosenberg Self-esteem Scale (Rosenberg, 1965, Appendix 9) and the Warwick-Edinburgh Mental Well-being Scale (Tennant, Hiller, Fishwick, Platt, Joseph, Weich et al., 2007, Appendix 10). The **Rosenberg Self-esteem Scale** has been used as a measurement tool to assess mental health outcomes in the ABE Programme since 2008. Rosenberg (1965, p. 30) defines self-esteem as "a positive or negative attitude toward a particular objective, namely, the self". Currently, psychologists define self-esteem as "the lived status of one's competence at dealing with the challenges of living in a worthy way" (Mruk, 2006, p. 28). Self-esteem is therefore based on two factors: competence and worthiness. Self-esteem is the way we evaluate ourselves in different contexts (for example family, work, exercise). It is the process of learning through experiences, both social (treatment by others, acceptance,

appreciation, affirmations) and individual (success/failure, control over actions, emotions) (Hodge, 2010; Mruk, 2006).

The rationale for using this scale is to identify whether self-esteem of participants of the ABE Programme changes. High self-esteem is associated with better health and well-being (Mruk, 2006). Furthermore, research suggests that self-esteem is related to life-satisfaction and symptoms of mental illness (Markowitz, 2001; Torray, Mueser, McHugo & Drake, 2000). For example, a longitudinal study using questionnaire data from 610 people with mental illness to model social-psychological recovery processes found that self-esteem has a bidirectional relationship with symptoms and life-satisfaction, meaning that an improved self-esteem can function as a buffer to mental illness symptoms and increase life-satisfaction (Markowitz, 2001). Physical activity can improve self-esteem, according to a meta-analytic review of 51 studies on the effects of physical activity on self-esteem (Spence, Poon & Dyck, 1997). The authors concluded that physical activity contributed to small, but significant, improvements in self-esteem, regardless of age and gender.

The Rosenberg Self-esteem Scale contains 10 statements answered on a four-point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’. Results range from zero to thirty. The higher the score, the higher the self-esteem (Rosenberg, 1965). The 10 statements of the scale are:

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I’m a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude towards myself.

The **Warwick-Edinburgh Mental Well-being Scale (WEMWBS)** was added in March 2011 for improving validity of the Rosenberg Self-esteem Scale. As mentioned previously, self-esteem and mental well-being are associated with each other: high self-esteem contributes to mental well-being (Mruk, 2006). The strength of the relationship between the Rosenberg scale and the WEMWBS scale was measured by calculating the correlation coefficient (r) of the available assessment results. The result, r = .87, indicates a strong correlation between these two variables.

The WEMWBS measures positive aspects of individuals' mental well-being (Stewart-Brown & Janmohamed, 2008). According to the creators of the scale, mental well-being relates to a "person's psychological functioning, life-satisfaction and ability to develop and maintain mutually benefiting relationships" (Stewart-Brown & Janmohamed, 2008, p. 2). Because 'mental illness' was defined for this study in a systemic, holistic and individualised way, people with mental illnesses can experience mental well-being, depending on circumstances and personal interpretations. The scale captures a wide range of aspects of mental well-being, including affective-emotional, cognitive-evaluative and psychological-functioning (Tennant, Hiller, Fishwick, Platt et al., 2007). To complete this scale individuals are required to tick the box on a five-point Likert scale which best illustrates their experience of each of the statements over the past two weeks (Tennant et al., 2007). Results are between 14 and 70. The WEMWBS contains 14 statements:

1. I've been feeling optimistic about the future;
2. I've been feeling useful;
3. I've been feeling relaxed;
4. I've been feeling interested in other people;
5. I've had energy to spare;
6. I've been dealing with problems well;
7. I've been thinking clearly;
8. I've been feeling good about myself;
9. I've been feeling close to other people;
10. I've been feeling confident;
11. I've been able to make up my own mind about things;

12. I’ve been feeling loved;
13. I’ve been interested in new things;
14. I’ve been feeling cheerful.

Physical activity level and smoking status: In March 2011 several assessment questions were added: information about the average number of days per week of physical activity for 30 minutes or more and the number of cigarettes smoked per day. The activity level is based on the recommendations from the New Zealand Ministry of Health (n.d. a) and American College of Sports Medicine (n.d.), which both recommend 30 minutes of moderate intensity exercise on most days. To assess smoking status is important because the New Zealand government aims for a smoke free country by 2025 (Smokefree Aotearoa/New Zealand 2025, n.d.) and places requirements on health services to collect information about smoking status. This additional information allows an examination of whether participation in the ABE Programme is associated with an increase of physical activity and smoking fewer cigarettes, both of which would indicate a generally healthier lifestyle.

5.2.2 Data analysis

For the quantitative data analysis the null-hypothesis was applied: that there are no changes in both physical and mental outcome measures when comparing pre-test with post-test results and pre-test with follow-up results:

1. There is no significant difference in systolic and diastolic blood pressure between T1* and T2** and between T1 and T3***.
2. There is no significant difference in weight (and BMI) between T1 and T2; T1 and T3.
3. There is no significant difference in self-esteem and mental well-being between T1 and T2; T1 and T3.
4. There are no changes in physical activity levels and smoking status between T1 and T2; T1 and T3.

* T1: assessment results at entry of the programme (pre-test).

** T2: assessment result at completion of the programme (post-test).

*** T3: follow-up assessment results approximately 6 weeks post exit.

Frequencies and distributions are presented with calculation of the mean (M) and standard deviation (SD) for each variable at entry, at completion of the programme, and six weeks post exit for the physical and mental health assessment data. To compare the change in the variables, the coefficient of variation (CV) and one-tail correlated t-test (p-level) is used. For all statistical analyses the .05 level of significance is applied. The .05 significance level has a 5% risk of a Type I Error. Type I Error means that there is a 5% risk that a difference of pre- and post-assessment results are significant (i.e. null hypothesis is rejected), when, in fact, there is no difference. This relatively high risk of a Type I Error, however, reduces the risk of a Type II Error (concluding that there is no difference, when, in fact, there is).

5.3 Validity and reliability

Reliability and validity are key considerations in quantitative research. *Reliability* is the repeatability of results (Golafshani, 2003). This means the result of a measurement should remain similar when applied repeatedly. This can be achieved through internal consistency, calculating test-retest coefficients and using equivalent forms of instruments (Ridenour & Newman, 2008). *Validity* refers to whether the measurement actually measures what it intends to measure (Golafshani, 2003). Validity differentiates between measurement validity and design (or method) validity (Ridenour & Newman, 2008):

- **Measurement validity** means that the measurement tool measures what it is supposed to measure. This includes content and discriminant validity: *content validity* (the extent to which the measurement tool covers the whole concept (Van Saane, Sluiter, Verbeek & Frings-Dresen, 2003) and *discriminant validity* (the degree to which the score or result of an instrument differs from another instrument that measures a related but different concept) (Van Saane et al., 2003);

- **Design validity** differs in internal and external validity: *internal validity* (the extent to which study is able to claim that the independent variable causes effect on the dependent variable); *external validity* (degree to which results can be generalised to other settings or groups).

Reliability of physical measures: blood pressure, weight, BMI

Internal consistency for the physical measurements of this study was achieved through constantly using the same tools. The only exception was when, after the earthquake in Christchurch in February 2011, a manual blood pressure tool was replaced with an electronic one. According to the manual provided for the electronic blood pressure monitor the accuracy is +/- 3 mmHg. To measure weight a digital scale was used. To improve reliability the same scale was used for all assessments. Differences from +/- 1 to 2 kg may occur depending on the surface of the floor, which clothes were worn and whether shoes were worn at the time of assessment. To minimise this measurement inaccuracy the same surface and 'shoe status' was used for each assessment. BMI was calculated using a formula. Height was not measured individually, so the results were not accurate for each individual, but indicated whether a client can be categorised as underweight, overweight or obese. Limitations to reliability apply because the test-retest coefficient was not calculated and both blood pressure and weight were each measured only once without confirming the result by using an equivalent tool.

Reliability of mental measures: Rosenberg Self-esteem Scale and Warwick-Edinburgh Mental Well-being Scale

The Rosenberg Self-esteem Scale is widely used and, according to several studies, considered to be highly reliable across diverse population groups, including adults with severe mental illness (Blascovich, J. & Tomaka, J., 1993; Jamil, 2006; Torrey, Mueser, McHugo & Drake, 2000). Although the WEMWBS is a less frequently used scale to measure well-being, several studies conducted in the UK confirmed its reliability in different population groups (including psychiatric populations) and projects (including lifestyle programmes) (Stewart-Brown, Platt, Maheswaren, Parkinson, Weich, Tennant et al., 2011; Tennant et al., 2007).

Reliability of other outcome measurements: number of days of physical activity, number of cigarettes smoked per day

The other outcome measurements such as the questions regarding the number of days of physical activity for 30 minutes or more and the number of cigarettes smoked per day rely on information given by the participants and cannot be verified. It needs to be acknowledged that self-perceptions can be inaccurate as people tend to overestimate 'good' behaviour (physical activity) and underestimate 'bad' behaviour (smoking) (Millar, Crute & Hargie, 1992).

Validity of physical and mental measures

Regarding the measurement validity of the physical assessments, a machine which measures blood pressure electronically and a digital scale for weight were used. Therefore, the chosen measurement tools measure what is intended to be measured. To improve measurement validity the same scale and blood pressure monitor was used for all assessments (with the exception of the blood pressure monitor change in May 2011).

Concerning the mental measurements, studies showed that both the Rosenberg Self-esteem Scale and the WEMWBS are valid measurement tools for different populations (including psychiatric), cultures and countries (Jamil, 2006; Lopez, Gabilondo, Codony, Garcia-Forero et al., 2013; Robins, Hendin & Trzesniewski, 2001; Schmitt & Allik, 2005; Stewart-Brown et al., 2011; Tennant et al., 2007; Torrey, Mueser, McHugo & Drake, 2000).

The internal design validity of the quantitative part of this study is low, because the pre-test/post-test design without control groups has the weakest evidence of effectiveness according the hierarchy of quantitative evidence (Jackson, Fazal & Giesbrecht, n.d.). Because results could not be compared with control groups it is not possible to be certain whether changes occurred due to the intervention or maturation (development that would also have taken place without intervention).

5.4 Results

5.4.1 Sample profile

When recruitment ended, complete data sets were available from 21 participants. Five of them participated several times in the programme: one of them participated four times; two participated three times; and two participated two times. This increased the overall number of data sets to 30. The data of the people who participated multiple times was integrated into the analysis because the sample size was too small to create sub-groups. However, it is important to note that the results of these people may be biased. The WEMWBS, assessment of the physical activity level and smoking status were introduced at a later stage. Twenty data sets were available for the analysis. Table 4 provides an overview of the sample profile.

Table 4: Sample profile of participants in the quantitative study

Characteristic		**Number**	**%**
Gender	Female	6	28
	Male	15	72
Ethnicity	NZ European/Pākehā	19	90
	Māori	1	5
	Pacific people	1	5
Age (years)	Mean	41	
Age groups	Under 20	2	7
	21 - 30	4	13
	31- 40	4	13
	41 - 50	11	37
	51 - 60	8	26
	Over 60	1	4
Primary diagnosis	Depression	5	24
	Bipolar	3	14
	Psychotic (Schizophrenia)	11	52
	Anxiety	2	10

Of the 21 people six were female and fifteen male. The ethnicity was made up of 19 (90%) New Zealand European/Pākehā, one Māori and one of Pacific origin. The main age group was between 41 and 50 years (37%), and the mean age was 41 years. The majority of subjects had a primary diagnosis of psychotic

disorders (52%). Other primary diagnoses included depression (24%), bipolar (14%) and anxiety (10%).

5.4.2 Data frequencies and distributions

The assessment data are presented in the following order:

1. Figures 6, 7 and 8 give an overview followed by brief comments of the assessment means at each time period (T1, T2 and T3).
2. Table 6 shows the overall means and standard deviation for each assessment for each time period.

Figure 6: Assessment means at each time period for blood pressure, weight and BMI

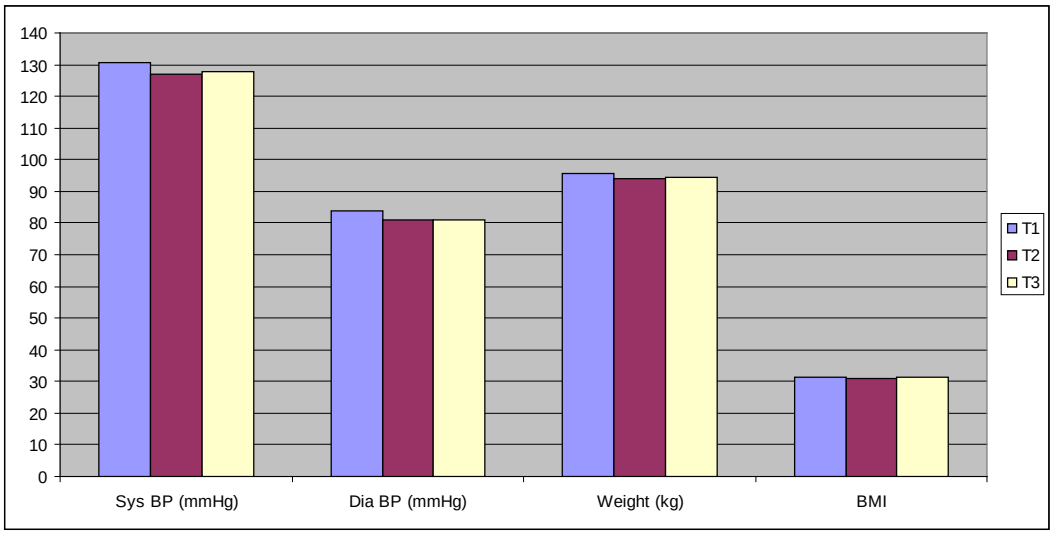


Figure 6 illustrates that overall only minor changes occurred in the physical measures (blood pressure, weight, BMI).

Figure 7: Assessment means at each time period for Rosenberg Self-esteem Scale and Warwick-Edinburgh Mental Well-being Scale (results rounded)

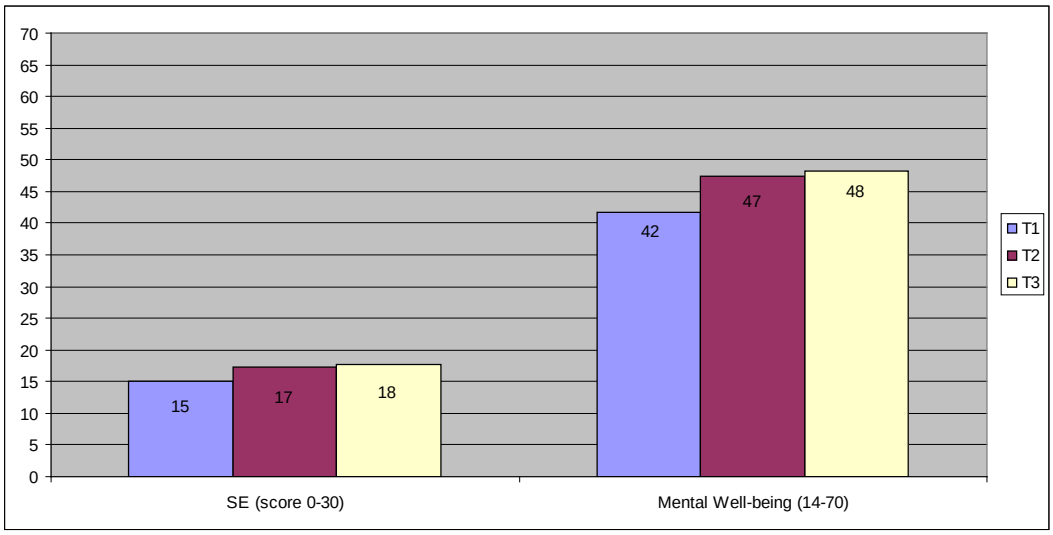


Figure 7 shows improvements in the mean scores for the Rosenberg Self-esteem Scale and the Warwick-Edinburgh Mental Well-being Scale during the programme, which remained approximately on this level post-exit.

Figure 8: Assessment means at each time period for physical activity level and smoking status (results rounded)

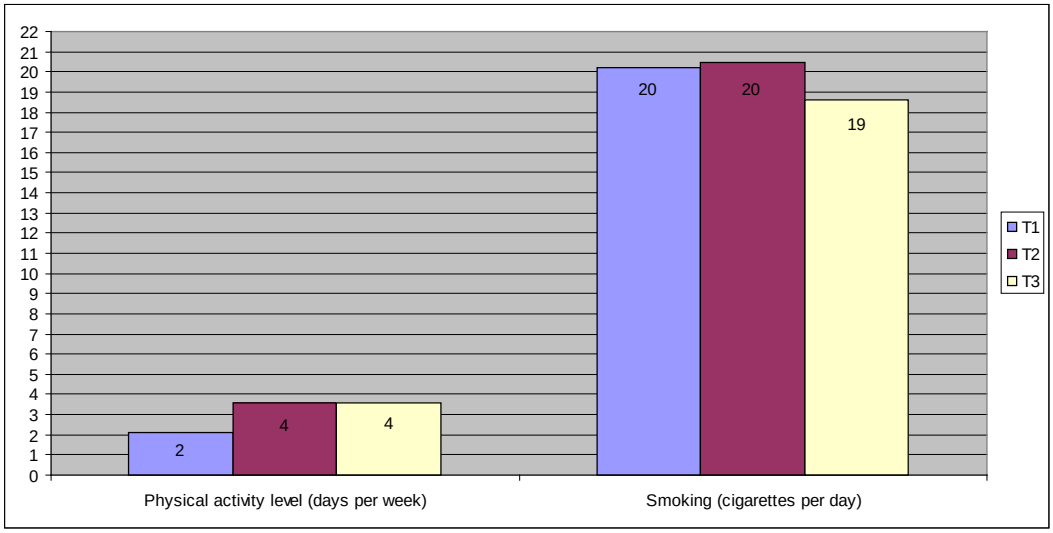


Figure 8 indicates that participants' physical activity levels doubled from two to four days per week during the programme and were maintained afterwards. Smoking status remained similar during the programme (around twenty cigarettes per day on average), but may have dropped slightly afterwards.

Table 5 provides the results for each assessment (blood pressure, weight, BMI, self-esteem, mental well-being, physical activity level and smoking) at T1, T2 and T3, in detail.

Table 5: Mean (M) and Standard Deviation (SD) for results of each time period (results rounded)

		Time periods		
		T1	**T2**	**T3**
Systolic BP (N=30)	M	131	127	128
	SD	16	13	12
Diastolic BP (N=30)	M	84	81	81
	SD	11	8	8
Weight (kg) (N=30)	M	96	94	94
	SD	28	27	27
BMI (N=30)	M	31	31	31
	SD	8	8	8
Rosenberg Self-esteem Scale (possible results 0-30) (N=30)	M	15	17	18
	SD	6	7	7
Warwick-Edinburgh Mental Well-being Scale (possible results 14-70) (n=20)	M	42	47	48
	SD	11	11	11
Physical activity level (days per week) (n=20)	M	2	4	4
	SD	2	2	2
Smoking (cigarettes per day) (n=10)	M	20	20	19
	SD	9	7	9

The pre-programme assessment results (T1) show that the average blood pressure of the participants of the ABE Programme was 131/84. This is above a healthy reading of 120/80, but below hypertension. The mean of blood pressure declined slightly for each time period. The average BMI of 31 indicates that most participants were overweight or obese. Comparing T1 with T3, only minor weight loss occurred. The average score of the Rosenberg Self-esteem Scale was 15 at T1; 17 at T2; and 18 at T3. The scores of the Warwick Edinburgh Mental Well-being Scale increased from 42 at T1 to 47 (T2) and 48 (T3). This is a noticeable increase in perceived self-esteem and well-being during the programme which was maintained post-exit. Participants were on average only two days per week physically active, which increased to four days at the end of the programme. This improvement was maintained post-exit. However, the SD of two indicates a high variation. Half of the participants (n=10) were smokers,

with an average consumption of approximately 20 cigarettes per day. The smoking status remained similar at exit and post-exit.

5.4.3 Testing the null hypotheses

This section describes the test of the null hypotheses stated in chapter 4.3.2. for each of the assessments and time periods.

Tables 6, 7, 8 and 9 illustrate the comparisons (significance p-level [t-test], CV (%), null hypothesis accepted if $p \geq .05$ or rejected if $p \leq .05$) of T1 and T2; T1 and T3 for each assessment.

Blood Pressure

Table 6: Testing the null hypotheses for blood pressure

	Systolic blood pressure			**Diastolic blood pressure**		
	t-test p-value	Null hypotheses	CV %	t-test p-value	Null hypotheses	CV %
T1 with T2	0.06	accepted	-2.68	0.04	rejected	-3.26
T1 with T3	0.14	accepted	-2.02	0.04	rejected	-3.62

Only the diastolic blood pressure showed statistically significant changes, but these changes were only minor and not clinically or statistically significant.

Weight and BMI

Table 7: Testing the null hypotheses for weight and BMI

	Weight			**BMI**		
	t-test p-value	Null hypotheses	CV %	t-test p-value	Null hypotheses	CV %
T1 with T2	0.03	rejected	-1.55	0.03	rejected	-1.55
T1 with T3	0.14	accepted	-0.56	0.21	accepted	-0.56

The differences in weight and BMI were statistically significant when comparing T1 with T2, however, the magnitude was small (1.55%). Differences were not significant when comparing T1 with T3.

Self-esteem and mental well-being

Table 8: Testing the null hypotheses for self-esteem and mental well-being

	Self-esteem			**Mental well-being**		
	t-test p-value	Null hypotheses	CV %	t-test p-value	Null hypotheses	CV %
T1 with T2	0.02	rejected	15	0.03	rejected	13
T1 with T3	0.14	accepted	17	0.21	accepted	15

Applying the .05 significance level, statistically significant changes occurred in self-esteem and mental well-being during the programme: self-esteem by 15%, well-being by 13%. However, when comparing T1 with T3, these changes were not significant, which may mean that improvements made during the programme could not be sustained by the majority of participants.

Physical activity level and smoking

Table 9: Testing the null hypotheses for physical activity level and smoking

	Physical activity level			**Smoking**		
	t-test p-value	Null hypotheses	CV %	t-test p-value	Null hypotheses	CV %
T1 with T2	< .001	rejected	69	0.37	accepted	1.26
T1 with T3	< .001	rejected	69	0.72	accepted	-7.9

There was a statistically significant increase in participants' physical activity level by 69% when comparing T1 with T2 and T1 with T3. No statistical difference was measured for the smoking status.

5.5 Summary

The quantitative component of this study comprised a simple quasi-experimental reversal study design incorporating the evaluation of several physical and mental assessment data collected at entry, exit and post-exit. Because of the lack of control groups it is unknown whether detected changes would have occurred without intervention. Only validated measurement tools

have been used. Reliability of these tools was provided through the consistent use of the same tools.

The participants in the quantitative study were mainly male and New Zealand European/Pākehā with various ages and diagnoses. Statistically, no major changes of the physical measures (blood pressure, weight) occurred as a result of the programme. Also, smoking status remained similar. Mental measures (self-esteem and mental well-being) and physical activity levels increased on average and were statistically significant when comparing pre- with post-programme results. However, although changes appeared to be significant, the small sample size and relatively high standard deviations relative to the mean values make it difficult to explain these results.

The quantitative results suggest that the ABE Programme potentially contributes to participants' mental well-being and seems to improve their activity levels. Are these results consistent with their experiences? What are the perceived outcomes and experiences from the participants' perspectives? What happened after completion of the programme? And what are participants' suggestions for improvements of the programme? The following chapter focuses on the qualitative component of this study which aims to answer these questions.

6. Qualitative study of participants' perspectives

6.1 Objectives

The objective of the qualitative component of the study was to understand participants' experiences with the ABE Programme. An interview guide was developed which included questions about the impact of the programme on participants' quality of life, mental health, well-being and recovery (Appendix 11). The guide also included questions for improvements to the programme and potential barriers to attendance and ways to overcome these. To ask participants about what happened after their participation in the programme could provide insights into exercise adherence strategies and why behavioural changes could, or could not, be maintained long-term.

6.2 Research methods and procedures

6.2.1 Qualitative descriptive method

Holloway (1997, p. 1) defines qualitative research as "a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live". Qualitative research aims to explore the behaviour, perspectives and experiences of people in order to understand their social reality (Holloway, 1997). The qualitative part of this study includes a qualitative descriptive study using semi-structured interviews with participants who completed the ABE Programme. Semi-structured interviews can explore individual perspectives, perceptions and experiences (Al-Busaidi, 2008). The purpose of a qualitative descriptive study is to provide a "comprehensive summary of an event in the everyday terms of those events" (Sandelowski, 2000 b, p. 336). As the overarching goal of this study was to describe and understand experiences of participation in the ABE Programme, this method was chosen as suitable for this purpose.

Britten (1995) states that semi-structured interviews are conducted on the basis of a loose structure consisting of open ended questions that define the area to be explored. Participants are invited to describe the experiences or situation in their own words, in their own time and are given the opportunity to report their own thoughts and ideas (Holloway, 1997). The advantages of semi-structured interviews are that they offer the flexibility for the researcher to focus on different aspects of clients' perspectives and experiences with the ABE Programme.

The **interview guide** included the following topics/questions (Appendix 11):

1. Basic demographic information: Age and ethnicity
2. Tell me about your experience with the ABE Programme.
3. What were your experiences during and after a typical session with the ABE Programme?
4. What changes have you noticed as a result of the programme?
5. How has the ABE Programme impacted on your quality of life, mental health and recovery?
6. How has it changed the way you think about exercise?
7. What were barriers for you to participate and how did you overcome them?
8. What happened after you have finished with the programme?
9. What do you recommend to improve the ABE Programme?
10. What else would you like to say about the programme?

6.2.2 Interview procedure

After signed consent forms were received, respondents were contacted and an appointment arranged for the interview. The interview took place at a time and place convenient for the interviewee. Before the interview a consent form was read to the interviewee and signed by the participant (Appendix 12).

Although the interviews were based on a question guide, interviewees were encouraged to develop ideas further. For example, the interviewer asked probing and elaborating questions and undertook reflective listening. Probing

and elaborating questions included ‘can you tell me more about that’ or ‘what do you mean by…?’ or ‘could you elaborate on that?’ or ‘can you give me an example?’ or ‘would you like to add anything else?’ Reflective listening is a way of checking the meaning of interviewees’ statements and also gives them the chance to elaborate further (Miller & Rollnick, 2002). Reflective statements can be simple or complex. Simple reflections are to simply repeat what was said. For example: Interviewee: ‘It was enjoyable and challenging’. Interviewer: ‘You found it enjoyable and challenging’. Complex reflections use different words aiming to encourage exploration (Miller & Rollnick, 2002). An example of a complex reflection for the above mentioned statement would be: ‘You are saying that on one hand you felt that exercising was fun, but on the other hand it was also hard work.’

All interviews were audio recorded. Notes were also taken during the interviews. Eleven interviews were transcribed by the researcher. Two interviews were transcribed professionally. Follow-up questions were asked by phone to clarify responses where necessary. Completed transcripts were sent to all participants with the invitation to provide feedback.

6.2.3 Data analysis process

The aim of qualitative data analysis is to identify themes to summarise the information contained in the transcripts (King & Horrocks, 2010). Some authors, such as Saldana (2009), use the term ‘category’ instead of ‘theme’. Qualitative data analysis is often based on underlying assumptions and procedures related to particular methods, such as grounded theory, discourse analysis or narrative (Thomas, 2003). This study aimed to explore the perceived outcomes of and experiences with the ABE Programme. Therefore, a more generic inductive approach described by Thomas (2003) was used. This approach allows “research findings to emerge from the frequent, dominant or significant themes inherent in raw data, without the restraints imposed by structured methodologies” (Thomas, 2003, p. 238). The categories generated

from the data were continuously modified in order to accumulate new data and insights about the data (Sandelowski, 2000b).

For the descriptive analysis of the qualitative data, the step by step procedure described by Thomas (2003) was followed. Thomas's (2003) article only provides a very brief description of the coding process which does not cover the complexity of this process in practice. Therefore Saldana's (2009) guidelines outlined in his in-depth book 'The Coding Manual for Qualitative Researchers' were used for the coding process.

Step one: Preparation of the raw data

The interviews were transcribed and printed. Names were replaced with pseudonyms to ensure anonymity.

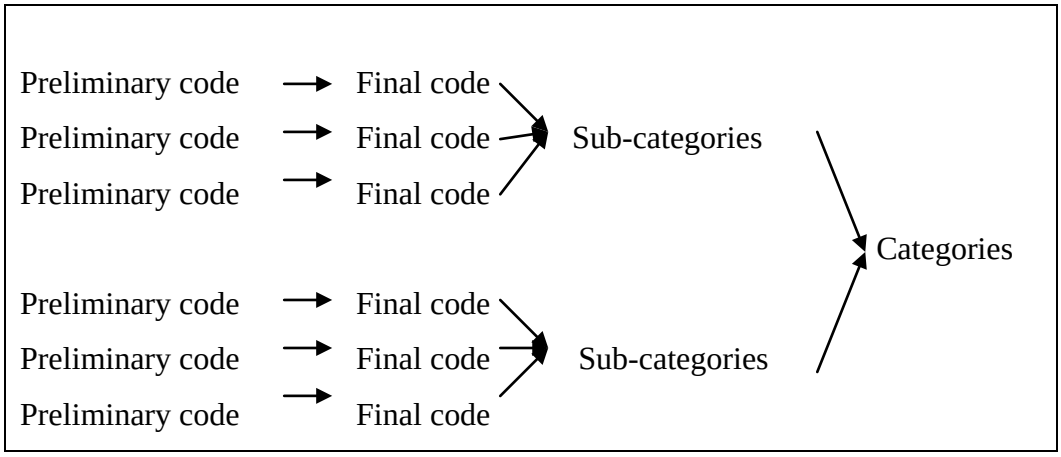
Step two: Familiarisation with the text

The raw text was read several times to gain familiarity with the contents. A table was established with a summary of responses to the questions as set out in the question guide for each interview. This helped understanding and provided a broad overview of interview contents.

Step three: Coding of the raw data

Saldana (2009) defines coding as the transitional process from the raw data to analysis. Coding is a step towards identifying categories within the data (Ezzy, 2002). Saldana defines a code as a word or short phrase which summarises a portion of language based data. He recommends differentiating between preliminary codes and final codes in the coding process. Preliminary codes are the first impressions or ruminations and are therefore a link between raw data and final codes. Final codes are codes emerging from the data and relevant to the aims of the research. A code list with the final codes used across all interviews was established to identify categories (more general) and sub-categories (more specific). For example, the quote "I lost a lot of weight" was coded 'physical changes' and placed into that category. The sub-category for that quote was 'body weight'. See Figure 9 for a summary of the coding process.

Figure 9: The coding process (adapted from Saldana, 2009)



Step four: Continuing revision and refinement of category system

In this step sub-topics for each category were identified. Each interview was coded twice, with a gap of one to two weeks between each coding process. According to Krefting (1991), this approach improves dependability (consistency) because codes can be compared with each other. Moreover, texts were manually cut into segments and sorted into categories. The categories and sub-categories were continually reviewed and revised until no further changes could be made. Models were then created to structure the categories and sub-categories in visual representations of the findings.

Step Five: Describing of the findings

The categories and sub-categories were described, interpreted and discussed. Appropriate quotes from participants were used to support the categories and sub-categories.

6.3 Establishing rigour

6.3.1 Trustworthiness

Trustworthiness within qualitative research aims to support the argument "that the findings of an inquiry are worth paying attention to, worth taking account of" (Lincoln & Guba, 1985, p. 290). According to Lincoln and Guba (1985),

trustworthiness includes credibility, transferability, dependability and confirmability. Credibility focuses on whether the research findings represent a 'credible' conceptual interpretation of the raw data, transferability deals with the question whether findings can be transferred beyond the project, dependability refers to the assessment of the quality of the process of data collection and analysis and confirmability refers to the degree to which findings are supported by the data collected, free of biases.

To establish trustworthiness for the qualitative part of this study the following methods were used:

Credibility

Prolonged field experience: Several authors claim that prolonged time in the field is an important factor to enhance credibility, because it develops an in-depth understanding of the phenomena and conveys details about the subjects investigated (Guba, 1981; Creswell, 2009; Lincoln & Guba, 1985). The researcher had facilitated the ABE Programme since 2008 which broadened his knowledge and experience in the mental health arena. Guba (1981) points out that engagement between the researcher and interviewees is crucial for building trust. Trust is the confidence of the participant that the information shared will not be used inappropriately and that there is no 'hidden' agenda. This trust was established during participation in the programme. The review and approval by the ethics committee and the process of reading the information sheet and consent form before the interview also reinforced trust.

Triangulation: Triangulation is the use of multiple research methods. Triangulation enhances credibility, because qualitative and quantitative data can complement and reinforce each other (Krefting, 1991). This study achieved triangulation through combining quantitative and qualitative data of participants who completed the ABE Programme. Thus, collected data complemented each other.

Referential adequacy: Referential adequacy is to ensure that the data is documented in order to make it traceable and re-checkable (Lincoln & Guba, 1985). All interviews were recorded and transcribed. Quotations were used from

the transcribed interviews to support the identified categories and sub-categories.

Interview technique: The interview skills of the researcher influence credibility because these enhance the process of information collecting (Krefting, 1991). The researcher was trained in motivational interviewing and communication techniques (such as asking open ended questions, reflecting listening and summarising), and these techniques were used during the interviews. Follow-up questions to clarify responses and elicit detailed information were also used. Notes were taken during the interviews, which helped to summarise key points for the interviewee at the end of the interviews. This method improved credibility because participants were given the opportunity to make further comments, to provide feedback and to agree/disagree with the summary.

Participant checking: Transcripts were sent to interviewees with the invitation to provide feedback on correctness of the text and to add any additional material. Phone calls to interviewees were made to clarify statements which were unclear to the researcher. For example, one interviewee said that he found the experience with the ABE Programme 'interesting'. After transcribing the interview the researcher was not sure what he meant by 'interesting' and called him for clarification.

Peer examination: Peer examination involves discussions about the research process as a way of keeping the researcher 'honest' and deepening the reflexive analysis (Krefting, 1991). Discussions about the interviews and the data collection and analysis process occurred in regular meetings with his research supervisors. This provided opportunity to receive feedback about the researcher's data collection process and analysis.

Critical reflexivity: Predispositions, perceptions and/or bias of the inquirer can distort the findings of a qualitative inquiry (McLeod, 2001; Patton, 2002). To minimise inquirer biases the procedure for data collection, analysis and interpretation follows the previously described steps. Potential for bias was further minimised through 'critical reflexivity' (McLeod, 2001) whereby the

researcher reflects on his own assumptions about the research question (Section 6.3.2).

Transferability

Description of participants and research methods: Transferability is difficult to achieve, because the answers of participants to the interview questions are specific and unique to them (Krefting, 1991; Shenton, 2004). Transferability, however, can be taken account of through "a clear and distinct description of culture, and context, selection and characteristics of participants, data collection and process of analysis" (Greneheim & Lundman, 2003, p. 110). A detailed description of the study participants, contextual information, data collection and analysis process can be potentially transferred to similar research studies. Details of interview participants are provided in Section 6.4.1 (Interview participants). Contextual information can be found in Section Chapter 3 (The organisational setting). The research methods and procedures were described in Section 6.2.

Dependability

Systematic process of research methods: One criterion for enhancing dependability is the explanation of the process of the inquiry (Guba, 1981; Lincoln & Guba, 1985). This process was described in Section 6.2.

Peer examination: Peer examination enhances dependability, because it offers the opportunity to receive feedback from colleagues, peers and academics (Shenton, 2004). For this study, peer examination took place in regular meetings with the supervisors. Both of them have experience with qualitative research. Thus, the feedback provided in these meetings ensured that the data collection and analysis process was of high standards.

Triangulation: Again, triangulation improved dependability, because it compensated for the weakness of one method of data collection with the strengths of the other method (Krefting, 1991). For this study, the weakness of not having one ore more control groups for the quantitative component could be

compensated through the in-depth information about the interviewees' experiences.

Code-recode procedure: The code-recode procedure used for this study can enhance dependability because it allowed the researcher to compare the results of both stages of the coding process (Krefting, 1991). Similar codes in both procedures reinforced their validity, whereas different codes could be reviewed and refined.

Data saturation: Data saturation within qualitative research occurs when the data is rich, full and complete and no new information can be obtained (Morse, 1995). Achieving saturation depends on the purpose of the study, the nature of the topic and the quality of data (Starks & Trinidad, 2007). According to Morse (1995), the narrower the sample and clearer defined the topic the faster saturation is achieved. Purposive, homogenous sampling was applied for this study to narrow the scope of participants: participants had similar characteristics (a mental illness) and experiences (participation in the ABE Programme). Every participant was asked the same questions (Appendix 11). Moreover, in conjunction with the supervisors it was determined when saturation of information was completed. Interview studies usually have 15 +/- 10 participants (Suzuki, Ahluwalia, Arora & Mattis, 2007). The number of 13 interviews was considered as sufficient because a replication of data occurred and the data revealed enough information to answer the research questions.

Confirmability

Detailed methodological description of the systematic process of data collection and analysis established confirmability because it allows an external auditor to follow the steps and understand the researcher's decision-making processes (Krefting, 1991). The research methods for this study are described in Section 6.2.

Confirmability audit: This included audio recordings, transcriptions and summaries of the interviews, code lists and the models (visual representation of the categories and sub-categories). These products of the inquiry were revised

several times and discussed with the supervisors in order to gain confidence that the interpretations were supported by the data.

Participant checking: Participant checking is to ensure accuracy of the data, meaning that the researcher's understanding of interviewees' words match what they intended to say (Shenton, 2004). This was achieved through asking for feedback after the summary of the key points at the conclusion of the interviews, by phoning participants to seek clarification and by inviting them to review transcripts.

Critical reflexivity was used because it ensured self-awareness of the investigator's influence on the data (Kreftinger, 1991). Critical reflexivity is outlined in the following section.

Triangulation: triangulation enhanced confirmability, because the results of one study design can confirm or give insight into the results of the other (Krefting, 1991). For this study, the qualitative findings offer interpretations of the quantitative results. For example, interviewees may talk about their self-esteem, mental well-being or body weight.

Quotations: Guba (1981) recommended using at least two quotes to support each key finding from the analysis. This recommendation was followed except when only one interviewee commented specifically on the point in question.

Table 10 provides a summary of strategies with which trustworthiness was established.

Table 10: Summary of strategies to establish trustworthiness

Criterion	Strategy
Credibility	• Prolonged field experience • Triangulation • Referential adequacy • Interview technique • Participant checking • Peer examination • Critical reflexivity
Transferability	• Description of participants and research methods
Dependability	• Description of research methods • Peer examination • Triangulation • Code-recode procedure • Data saturation
Confirmability	• Detailed methodological description • Confirmability audit • Participant checking • Quotes

6.3.2 Critical reflexivity

Critical reflexivity is the researcher's own reflections and assumptions about the research questions (McLeod, 2001). Josselson (2007) points out that within qualitative research the role and contribution of the researcher as the primary data collector is crucial, because personal values, assumptions and biases may influence data collection and analysis; for example by the way questions are asked, statements are reflected during the interview and words/sentences are interpreted and coded. Thus, an identification of personal values, assumptions and biases is necessary. The main research questions for this study were to understand the impact of physical activity in terms of physical and mental health changes for people with mental health issues and their experiences with and outcomes of engaging in physical activity in relation to their well-being and quality of life.

Physical activity plays an important role in the researcher's life. He grew up in a rural area and he had spent most of his spare time in the outdoors. As a teenager he competed in swimming and triathlons. After high school he

wanted to convert this passion into a career through becoming a physical education teacher. At university he developed his interest in the body-mind relationships, especially for people with disabilities. Therefore, he completed post-graduate studies in 'Motologie' (translation: Psychomotor therapy), which is the science of the connection between movement and mind. However, he found that the foundation of Motologie was mainly based on philosophical theories and observations rather than evidence. After graduating the researcher started working as a physical activity coordinator for people with intellectual disabilities. The positive impact and importance of physical activity on their well-being was visible, in particular when participating at events such as the Special Olympics.

In New Zealand the researcher studied fitness instruction and personal training at the Auckland University of Technology (AUT) and worked in the fitness industry for several years, with personal involvement in endurance events. While working in the fitness industry he observed that the majority of people were engaged in sports or joined the gym for personal health and well-being reasons. This was an important learning experience in preparation for the shift from the fitness industry to a mental health community support service, to support people with mental health issues to engage in physical activity. The researcher realised that often these people found it very challenging to exercise, especially without support.

While looking for possible solutions to improve motivation, the researcher enrolled in the post-graduate degree at the Health Sciences Centre at the University of Canterbury, majoring in health behaviour change. The courses were designed to both develop an understanding of New Zealand's health system and theoretical/practical competencies in Motivational Interviewing. Another influential course was an independent research study. The topic studied in this course was a comparison of assessment results of the participants in the ABE Programme and to review the theoretical foundation of the programme. The researcher's attitude to exercise changed dramatically as a result of that course. Previously, the researcher strongly believed in a dose-response relationship to achieve certain outcomes which were mainly

guided by personal and professional experiences from the fitness industry and physiological scientific evidence. However, the researcher came to realise that it is important to take actual personal circumstances into account. This is particularly important for people with mental health issues because the individual's situation and circumstances can change very quickly. Therefore, the contents of sessions often need to be flexible and adapted accordingly.

Overall, the researcher perceives physical activity, whether endurance or resistance based, as stress relieving, able to improve well-being/quality of life and enjoyable. This applies specifically if it is carried out outdoors with others in an attractive environment. Based on the researcher's experience, he believes that the ABE Programme has a positive impact on clients' health, well-being and quality of life.

During the data collection and analysis process the researcher was conscious of a possible influence of his bias, but at the same time he aimed to be objective. Subjectivity is to a certain degree unavoidable. However, to reduce the impact of personal bias the researcher only asked questions from the interview guide and followed up on statements in relation to the research questions. He aimed to be in control of his own inner processes by accepting responses of interviewees empathically and non-judgmentally. However, the first few interviews especially were affected by personal bias, for example by the way respondents' answers were reflected. One example is when the interviewee said: "It (ABE Programme) was really interesting"; the interviewer responded: "You felt you got something out of it". After realising this, for the following interviews the researcher aimed to reflect statements by using the interviewee's words. A similar trend occurred during the coding process: initially, codes represented subjective interpretations of interviewees' statements, whereas at the re-coding process codes were close to interviewees' words. For example, the statement: "Before I've just been down and not knowing where I was going but with the workouts and the running and that it just made me a lot clearer" was coded initially 'awareness, direction', whereas at the recoding process 'exercise made me clearer'.

6.4 Results

6.4.1 Interview participants

The following Table 11 provides an overview of the interview participants.

Table 11: Overview of the interview participants

Characteristic		Number
Gender	Female	2
	Male	11
Ethnicity	NZ European/Pākehā	9
	Māori	1
	Pacific people	1
Age groups	18 - 20	3
	31- 40	2
	41 - 50	5
	51 - 60	2
	Above 60	1
Diagnosis	Depression	3
	Bipolar	2
	Psychotic (Schizophrenia)	4
	Anxiety	4

Two interviewees were female; 11 male, with participants' ages ranging from 18 to 65. The majority of them were aged between 41 and 50 and of New Zealand European/Pākehā ethnicity; only one identified himself as 'partly' Māori and one was of Pacific origin. Participants had a range of mental health diagnoses.

Almost half of the participants (six) participated in the ABE Programme more than once, mostly twice. One even participated four times, but he often exited the service prematurely for health or employment reasons. Two of the interviewees who participated in the ABE Programme in the past were clients at the time of the interview. Five of the interviewees completed the programme less than a year previously; three over a year (a maximum of 3.5 years); and three completed the programme about one to two weeks before being interviewed.

The interviews lasted from 10 to 44 minutes (average: 24 minutes). The shortest interviews were the ones with participants who had completed the programme only recently. This indicates that it may take some time after completion of the programme to be aware of and articulate experiences, outcomes, barriers and long-term impact. Another possible explanation is that interviewees, who the researcher had not seen for a long time, wanted to reconnect and make the visit 'worthwhile'.

6.4.2 Developing the models

Models were used to structure the qualitative findings as visual representations. This section describes the process of creation of the models. The models emerged after multiple stages:

Stage one: the transcripts were read multiple times for the researcher to become familiar with the data. After the first coding process several categories and sub-categories emerged (Table 12).

Table 12: Categories and sub-categories established after stage 1

Categories	**Sub-categories**
Experiences	*Physical:* body weight, fitness, strength, energy level *Psychological:* confidence, emotional, attitude, self-awareness *Behavioural:* getting out of house, develop pattern, doing other activities
Support	Learning skills Motivation/encouragement Company Other services Getting out and about
Barriers	Negative life/self perception Mental un-wellness Lack of motivation Life circumstances
Recommendations	Frequency/duration Equipment Group/peer activities Structure of session

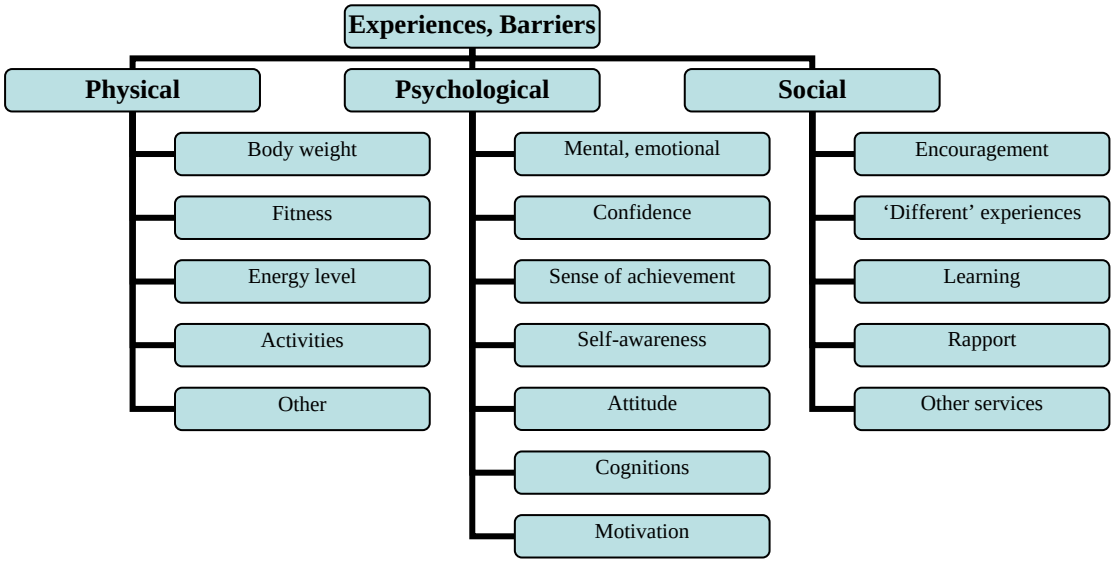
Stage two: After further reading of the transcripts and a second coding process the category tree was further developed and revised. For example, the interviewees' experiences with the ABE programme were so related to the barriers to participating in the programme that the category 'barriers' was merged into the category 'experiences'. For example, being overweight was often mentioned as a barrier, but also weight loss as a personal experience. Moreover, the category 'support' was merged into 'experiences' because support was described by the interviewees as an integral part of the experience. Recommendations reflected two main issues: the programme itself and the support provided (Table 13).

Table 13: Categories and sub-categories established after stage 2

Categories	**Sub-categories**
Experiences, barriers	*Physical:* body weight, fitness, energy level, activities, other *Psychological:* mental/emotional, confidence, sense of achievement/accomplishment, self-awareness, attitude, cognitions, motivation *Social*: encouragement, company, learning, other services, different experiences, getting out of house
Recommendations	*Programme related:* duration, frequency, equipment, group activities, structure of session *Support related:* celebration of achievements, intensity, communication, providing choice, encouragement

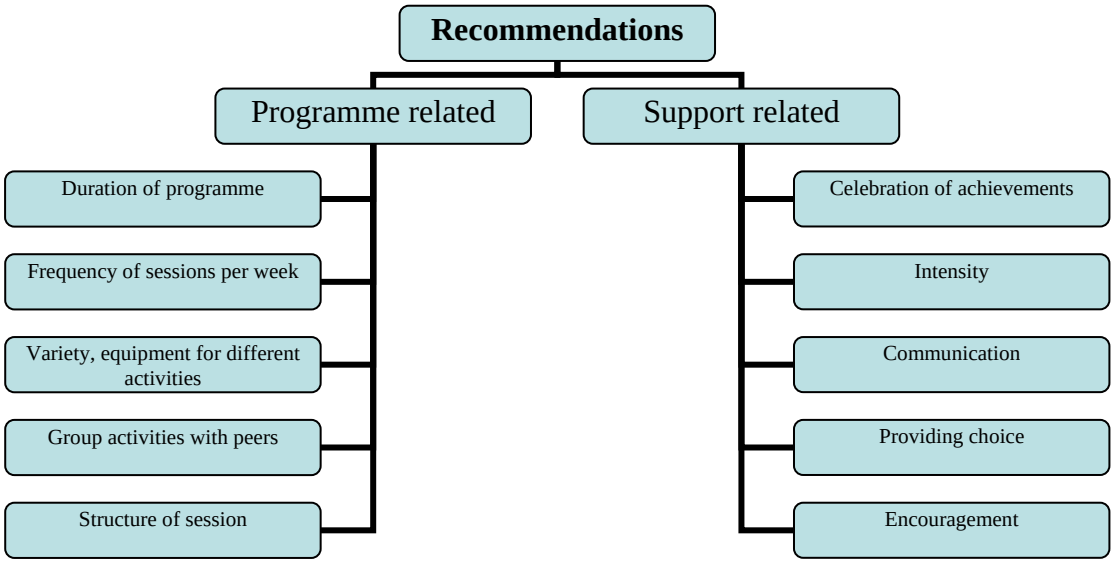
Then, at the *third stage*, relevant quotes which elaborated on the particular categories were identified. Figure 10 presents the model of participants' experiences and barriers.

Figure 10: The model of participants' experiences and barriers



The second model was created for the recommended improvements to the ABE Programme from the participants' perspectives. The recommendations were very specific and best illustrated in the following tree-diagram (Figure 11).

Figure 11: The model of participants' recommendations



The findings are presented in the following way:

Section 6.4.3: Participants' experiences and barriers;

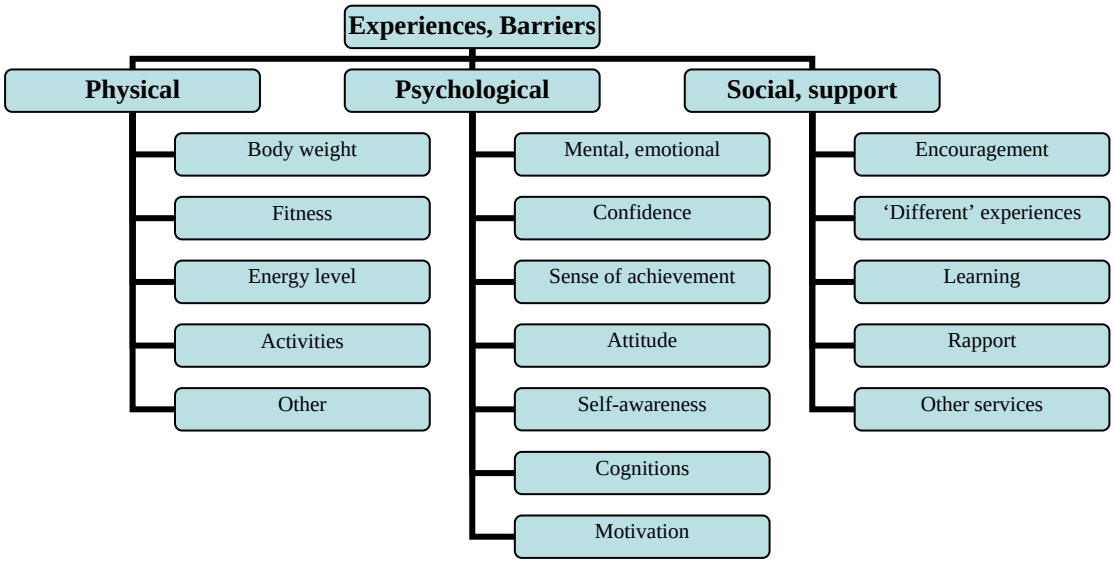
Section 6.4.4: Participants' strategies to maintain exercising;

Section 6.4.5: Participants' recommendations to improve the programme.

Participant quotes were used to support and explain the descriptions of the findings. For easier reading the quotes were ‘cleaned’ of expressions such as ‘ah’, ‘um’, ‘you know’ and phrase repetitions. Names were replaced with pseudonyms. At the start of Section 6.4.3 (Participants’ experiences and barriers) and Section 6.4.5 (Participants’ recommendations) the model of the categories and its sub-categories is presented.

6.4.3 Participants’ experiences and barriers

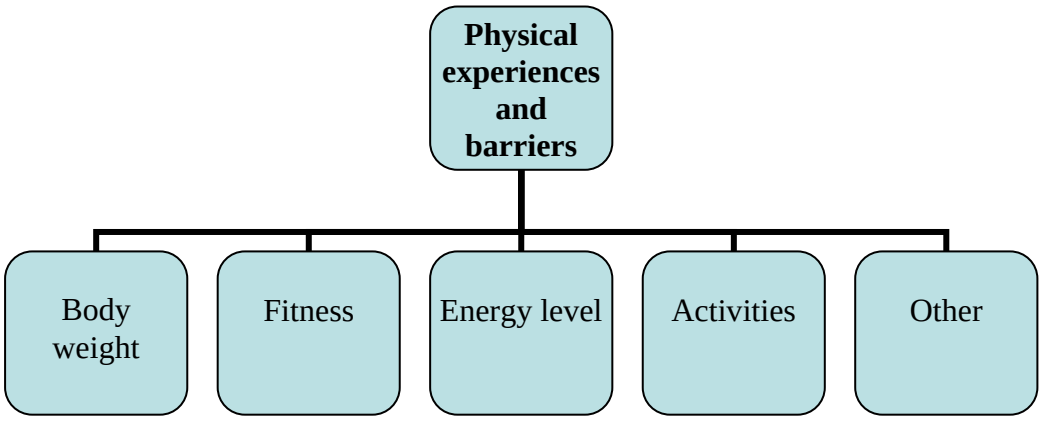
Figure 12: The model of participants’ experiences and barriers



Explanations of the findings for each category are set out as follows: (1) description of the main outcomes and experiences of the programme incorporating interrelationships with other subcategories; (2) description of the barriers to participating in the programme.

Physical

Figure 13: Physical experiences and barriers



1. Experiences

Body weight, Fitness, Energy level, Activities

Interviewees reported several physical experiences which were related to body weight, fitness and energy as well as general activity levels. Some of the responses were as follows:

"I think I lost about five kgs … since I have been with you, which is good. … I felt a bit stronger and I could go a bit harder on the machines … maybe my fitness level has going up quite a bit." (Tina)

"I had a lot more energy, I was more motivated to do other things, that I wasn't able to do, things that would have been neglected, things that I wanted to do in my life." (Ben)

"Feeling fitter and stronger and I can do more things during the rest of the day, things go better when I'm exercising. And with the stamina I'm feeling physically fitter of taking on some more things that I would have less likely taken on if I hadn't started exercising. The stamina gives me the confidence to give social things a go, that I would not otherwise." (Max)

As the quotes show, physical changes led also to behavioural changes and increase of confidence. Participants were able to use increased energy levels,

fitness and stamina in other areas of their life, such as housework, gardening or even work:

”I feel good and I remember we went for a run or we go to the gym and then I go home and tidy my flat.” (Jamie)

“I just like do more housework and get into a bit more gardening and now I started mowing the lawn and enjoying that.” (Brett)

“I’ve got more fitter, I seem to be able to, I mean if I can work twelve/fourteen hours shifts, constantly running around on my feet at work and I never feel tired anymore whereas quite often I couldn’t do a half hour gym session with you when I first started.” (Ant)

Karl said that the weight loss enabled him to move and bend more easily. He explained: “with losing the weight I can move and tie my shoe laces.” Karl also mentioned that he received a prescription for nicotine replacement patches, which helped him to cut down on his smoking and improve his breathing.

Other

There were other physical experiences mentioned by interviewees as a result of becoming more physically active. For example, Max lowered his blood pressure into a healthy range and no longer required blood pressure reducing medication. Don reduced his psychiatric medication. He linked the reduction of medication to exercise because he reduced it after he became more physically active. Don argued: “It must be helping because I need half the dose that I had been prescribed in the past. So, that indicates to me that it must be working, it must be helping.”

Brett said that he had the impression that his sleeping had improved and he was feeling generally more relaxed and less stressed. Only one respondent said that exercise negatively affected his physical health temporarily. Chris said that he felt physically sick when he first started exercising. However, he said it was triggered by dehydration and insufficient food. He learned from his experiences

and accordingly made changes to his diet in order to avoid feeling sick. Chris explained:

"At first I got a bit sick, but I think that was bad nutrition and I did not really eat that well that day, on the days and I was poorly hydrated. And I'm pretty sure that brought on my sickness and when I started making a point of having a good meal like a couple of hours before, I stopped getting sick. So it was educational, it made me more aware of my body; if I'm gonna be working out I really should be making sure I eat well every day."

2. Barriers

Physical circumstances were sometimes mentioned as barriers to participating in physical activities. Examples include a lack of fitness or being overweight:

"It was just hard because I wasn't fit. I was really lazy, movement wasn't really my strong point, so I reckon the main barrier was my weight, how much that stopped me from doing things." (Brad)

"I think when we started I had more weight on, so that made it more difficult." (Max)

A frequently expressed barrier to engaging in exercise was feeling overweight, lack of energy and low fitness levels. These are common symptoms of a mental illness and side effects of some medications and they seem to contribute to a sedentary lifestyle and act as barriers to physical activity. These barriers are especially difficult to overcome if they have been present for a long period, as Luke explained:

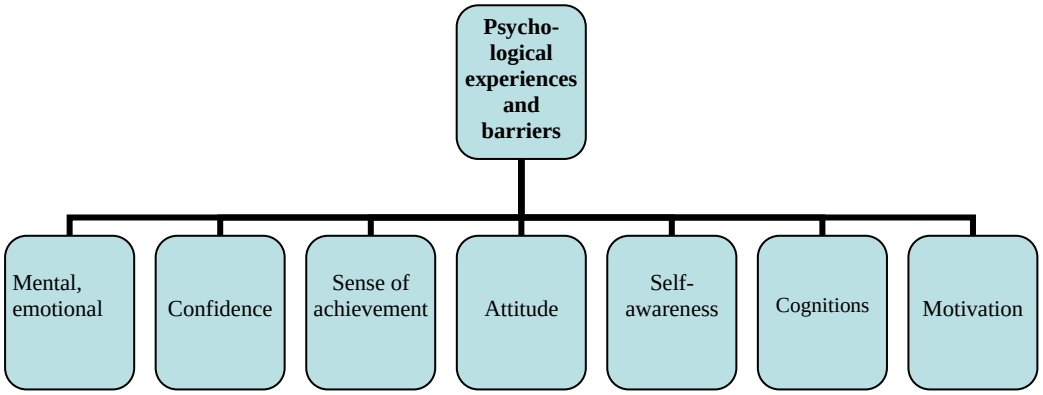
"When you are forty six years old and you smoked for thirty odd years and then you haven't exercised for like seven, eight years, you start to exercise, things can be quite difficult for the old body to get going again."

Often, physical changes were associated with psychological improvements. Tina reported: "Since I started fitting my clothes a lot better, oh, this is excellent

and I felt really positive and good". Ben agreed: "I was more motivated and I got quite excited about it and I started to get fitter, losing weight, I was quite overweight, and it was a great feeling to see those things improving." Jan summarised it as "if you physically feeling good, mentally and emotionally I'm feeling good." As these examples show, physical and psychological dimensions were often interrelated. The following section elaborates on the psychological dimension.

Psychological

Figure 14: Psychological experiences and barriers



1. Experiences

Mental and emotional

When asked about mental health, respondents often reflected on their emotions and mood. None of the interviewees said that physical activity had a negative impact on their mental health. Only Ben stated that initially walking triggered negative thoughts and sadness, however, over time his thinking became more positive and he became happier. He said: "My mental health was huge, but when I was starting doing exercise my mental health problems seemed to shrink and then my …energy levels grew and my life expanded … I started enjoying life more."

Some interviewees said that exercise helped lift or stabilise their mood. Don, for example, experienced "an elevation in mood but without being hyper-manic or delusional. It was just feeling good about myself." For Jamie exercise "helps stabilise mood, so there is not so much fluctuation within the mood." Max said

that walking helped him coping with depressive feelings: “My depression is at its lowest level when I’m physically mobile … . When I stop exercising I feel worse, my mood goes down.”

Tina pointed out that exercising specifically helped to manage her positive psychotic symptoms. This effect, however, only lasted for approximately half an hour. She explained:

“When I hear voices I go really hard at the gym and try to beat them. And it makes me feel stronger towards them like after a workout I feel really good, the voices don’t bother me as much.”

Some respondents said that they found participating in the programme enjoyable and fun. The enjoyment and fun was generally related to the results, content of the sessions and interactions with the support worker, as the following examples show:

“It was fun, I enjoyed you, that was fun. Yeah. It was a lot of fun, it was great, I lost a lot of weight” (Brad)

“I found it quite enjoyable actually because we used to go out to the gym, lift a bit of weights, I quite liked it, trying to make the exercises that I used to do when I was playing rugby that you couldn’t do, which I found quite funny, it was awesome.” (Ant)

Another interviewee said that he felt more relaxed, balanced: “I was more satisfied I think more now of what I have got … . More grateful. I don’t have to strive” (Brett). Ant said that physical activity assisted him with the management of his anger and frustration. Brett mentioned that he became more conscious of and grateful for the environment and himself:

“I listen to my breathing. I actually sometimes put my hands on each side when I lay down and practice relaxing or I put my hands on my stomach and listen to

my breathing… . [I] started to cut music out and just listen to outside sounds and just have peace and quiet."

Some respondents perceived their life generally as 'negative' and they said that participating in the programme brought something 'positive' into their life. Ant said: "It [the ABE Programme] did put positive things in my life rather than all the negatives that I had."

Confidence

Respondents reported an improvement in their confidence after engaging in regular exercise which enabled them to leave the house more comfortably or try new things. The following statements illustrate this:

"I feel more confident to go out of the house and more confident to go to the gym. My self-esteem has come up." (Tina)

"I wasn't scared anymore to give things a go". (Ant)

Sense of accomplishment/achievement

By overcoming potential barriers, achieving and recognising the completion of a challenging task, some people reported a sense of accomplishment or a sense of achievement. Some interviewees found exercising quite challenging:

"[Exercising was] hard work, …, I was out of energy and quite tired by the end of the session." (Brad)

"Some of the activities that I did seem quite difficult for me, it was quite challenging." (Ben)

However, the sessions gave some of the respondents a sense of accomplishment/achievement, because they stepped out of their 'comfort zone' and achieved goals. For example, Brad said it was rewarding for him because he did something challenging, different and unfamiliar. For Jan the sense of

achievement was the key factor of engaging in physical activity. She said “if you don’t get a sense of achievement there is no point doing it.”

Attitude

Prior to participation in the programme, most interviewees had a positive attitude towards exercise and were aware of the benefits. Theses positive attitudes came mainly from previous experiences. Examples were:

“I knew exercise was good for me and I always used to do a lot but when I became sick I didn’t, I wasn’t able to do any exercise. I realised that exercise is an important part of our life, we can’t survive without it, we all need exercise and it’s part of our makeup and it’s part of our well-being and it helps our whole body, our mind, our organs. Without, people get diabetes and, so it helps all these things, it’s like you pass your warrant of fitness, your body is right.” (Ben)

“My attitude about exercise never ever changed, it was always positive but yes, but I have to get myself round the right people and the right kind of people that were going to motivate me.” (Luke)

Chris said although he always knew of the impact of exercise for his mental and physical health, participating in the ABE Programme “gave it a greater importance. Even if it’s just walking, I put more importance in doing it than I did before.” He continues:

“I’m much more prone thinking I walk instead of taking the bus, because this is good exercise and my thought often goes through my head, and I’m not taking the bus home when I can walk. I think: ’what’s the reason I don’t want to walk?’ And if my only reason is because I’m lazy I walk and I would not have done that before. So I make a point of getting at least a little bit of activity.”

A few respondents pointed out the programme changed their attitude quite significantly. Some examples were:

"Originally my thought was exercise is bad, I had to go outdoors and outdoors is bad and I don't really like doing anything, TV and my computer was the best things in my life. But then I did the programme and it sort of changed, where exercise became a good thing and being outdoors and doing exercise was more than, more than just something to do, it wasn't just a get fit, it sort of became a habit and I would do it anyway and I do it on a daily basis now." (Brad)

"I hated it, absolutely, I thought you are a […] idiot for paying money to go join the gym, swimming pools or… . I didn't see what the correlation between doing something physical like that and how it can benefit you, I didn't, I had no idea." (Ant)

Both Brad and Ant thought that a positive personal experience and awareness of the benefits of physical activity were essential. Both explained that exercising became 'special' because physical activity positively affected their well-being.

Self-awareness

Although most interviewees had a positive attitude towards physical activity, they were not aware of the impact of exercise. Some participants reported that they became more aware of the benefits of physical activity for their mental health. Examples were:

"It's been a realisation that since I took on exercise just becoming aware that when I'm walking I'm feeling the best I feel all day, that my depression is at low level when I'm exercising. When I stop exercising it drops, that's been quite a revolution really." (Max)

"I always knew that exercise is good for you, but I never realised how important it was for people with mental health [problems]." (Ben)

"I learned that I needed to have some form of exercise or a little bit of exercise to regulate me emotionally and mentally." (Jan)

Cognitions

A few interviewees said that physical activity influenced their cognitive processes, for example, finding direction in life or positive thoughts:

"It stopped me dwelling in what had happened in the past and sort of trying to live my life more day to day ahead of me not day to day behind." (Ant)

"It grounded my thoughts and helped clear the path to what I wanted to achieve where I wanted to go and what I wanted to achieve. Because prior to that I haven't have a clue. I didn't know if it was possible to achieve a goal." (Jan)

"Before I've just been down and not knowing where I was going but with the workouts and the running and that it just made me a lot clearer." (Jamie)

"When I kept up the walking it sped up my thought process and I found myself getting life into a better balance and more positive. I became, but this took quite a while, it didn't happen over night and I had to keep at it and eventually became more positive and my thought patterns became better and better." (Ben)

These examples show that looking forward instead of back and experiencing more direction in life were key factors in changing negative thought patterns. Developing a plan and establishing goals were crucial for changing negative thought processes. Ant explained that "doing the plans with you, like the goals that I wanted to do, and made me actually have something to achieve for, which I never in my life living that way, trying to think more ahead, what I wanted to do with myself, I have never done that."

2. Barriers

The lack of motivation was often mentioned by participants as a barrier to exercise. Other common barriers were low self-esteem or confidence. Examples were:

"I know I should be doing a lot, a lot more, I know that in my head but I'm just too lazy and unmotivated sometimes to do it. It's just how I am." (Don)

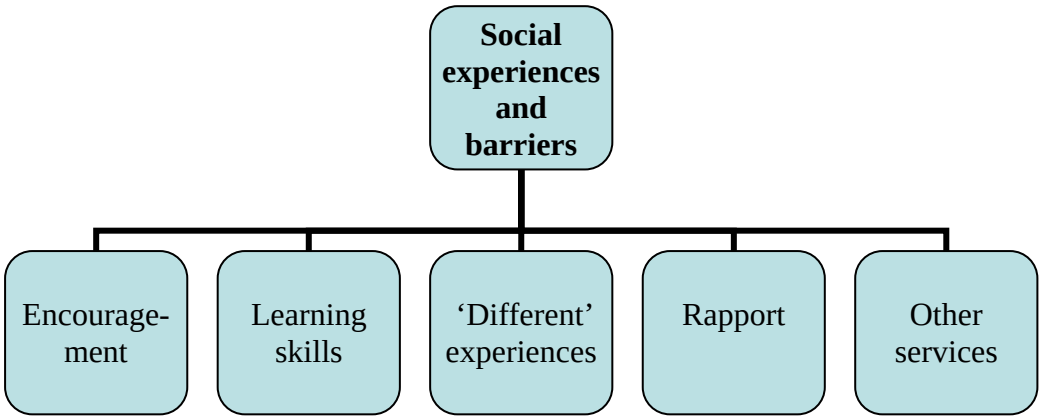
“I didn’t think I can do it, not think I was capable. That would have been one of the barriers. Or just total lack of motivation would have been one of my barriers, that would have been the major barrier.” (Jan)

“My negative self-perception, that was the main barrier, I have with life.” (Jamie)

Only one interviewee (Don) assumed that his mental health diagnosis may prevent him from exercising. He said: “I just don’t understand why I’m like that. Well, maybe it’s part of my condition, I don’t know.”

Social

Figure 15: Social experiences and barriers



Social support is an important factor of the ABE Programme. This section elaborates on the social and support aspects mentioned by the interviewees.

1. Outcomes and experiences

Encouragement

It was often acknowledged by the interviewees that encouragement was necessary for motivation, company and to leave the house:

“It got me out of the flat, so it helped me to be less isolated ... . The company and motivation, you helped me establish a good pattern.” (Max)

“If I hadn’t done the programme I probably would found it very, very hard to actually get out there and do exercise again… . The programme helped get that back into my life, the more we did it the better I became and I found the programme really helpful.” (Ben)

“Because of the mental health issues it was good that you came over because at least it got me out of the house and got me moving.” (Luke)

“I always worked by heart when I was with you but I never did much on my own, that was my big weakness with the exercise programme.” (Chris)

Learning

A few respondents felt that they learned something by participating in the programme. This included, as the following quotes show, swimming, weights or stretching exercises:

“The thing I liked most about it was the swimming, actually. I had no idea my swimming technique was so bad, it was learning something new and learning to do it right and practising it, I enjoyed that, because I haven’t done it much throughout my life, learning and improving.” (Chris)

“For my legs and my lower back, because I was struggling with my lower back, so you taught me some of those exercises to do, which I found very helpful.” (Jan)

“I was a bit nervous to start doing the weights, because I wasn’t sure how to do them but you taught me quite well and I know now how to do most of them now.” (Tina)

Learning and recognising the resulting improvements seemed to be enjoyable and helpful for the respondents.

'Different' experiences

Some participants said that they liked doing something out of the ordinary, something 'different'. Brad, for example, said that he enjoyed doing things which were not familiar to him and that he could not have embarked on exercise by himself. Max also enjoyed a break from his ordinary life. For him it was being in an attractive environment as well as having somebody to talk to. He liked the "pleasant scenery to look at while we walked and I very much enjoyed my dialogue with you".

Other services

The importance of the availability of services, such as Step Ahead and ActiveLinks, was pointed out by several people, even if they were not using them. Max, for example, said: "I'm not doing anything with them but they've got the gym and the walking group, I find it helpful to know that those things are available at Comcare."

Some interviewees pointed out that the ABE Programme is often only 'one piece of the puzzle' in their support for recovery. Medication and counselling were mentioned as contributing factors. Brett, for example, said: "I'm also going to counselling, so that's quite good and it's how I learn to deal with feelings and emotions."

Rapport

Several interviewees appreciated certain attitudes of the ABE support worker. This included being non-judgemental, genuinely listening and caring, offering encouragement and hope, being optimistic and having a 'can-do' attitude. Comments include:

"That constant motivation by you to go out and trying new things is what helped me get through, so I felt really good about myself after each session, because you proving to me that I have nothing to lose getting out there again. … . You seemed quite keen in how I was doing and how I was feeling at the time. And so some days I wasn't having a good day so I cancelled everything on you, but with the stubbornness you got me into the right track of doing things, so that

was good, you didn't give up on me which is what I needed. … . And you didn't judge me, you accepted me for who I was." (Ant)

"That rapport which helped me motivate me forward and I knew that you weren't taking me down a path that would be harmful to me, that you listened to what my requirements were and you planned a, you did a plan around that would help me." (Dan)

2. Barriers

Lack of support after completion of the programme was often mentioned as a barrier for maintaining physical activity. Jan said: "When the support went I kind of flopped." Don "slid back" after finishing the programme. For some, the relapse happened very fast. Chris, who had just completed the programme said: "I have fallen back into some bad habits recently, haven't got as much energy as I did, sleeping a bit too much". Some struggled with motivation to keep up exercising because they did not have somebody to do it with. Chris explained: "I always find it hard to do stuff on my own, to find the drive, the motivation".

6.4.4 Physical activity adherence

Why did some of the respondents continue exercising after completion of the programme whereas others did not? As mentioned previously, some used other services to stay physically active. For example, Karl participated in the gym and walking groups from ActiveLinks, Brett played badminton at ActiveLinks, Jan joined the walking groups at Step Ahead.

The following quotes are from participants who continued exercising independently after completion of the programme. They provide indications of contributing factors for exercise adherence:

"The exercise carried on even after I stopped seeing you, most places I go I ride my bike. So I'm getting exercise. The last few weeks when I was seeing you I

lost around eighteen kg and then when I lost around eighteen kg that really helped me see the benefits of getting out and exercising." (Luke)

"I think initially I kept it up for a while but then when I got more depressed for a patch I regressed and put more weight on again and that was when the blood pressure got worse and I was exercising less but again when I came out of that deep depression, […] but when I got to a better space after that relapse, exercise was the first thing […] and I build it up more […] and got more confidence and that is really making a difference for me." (Max)

"I carried on with the exercise and the fitness as much as I could and it became a habit, a daily thing. I used to catch the bus to school and now I bike. And, or I used to just not go to school and now I bike and if I don't go to school I go bike somewhere else." (Brad)

"After we finished the programme I knew that it was over to me. And I had to make some effort, because you weren't there anymore and I had, I can either do nothing and stay the same or I can carry this on so I decided each day I would try to fit in exercise, even when it was just a little bit. […] It became like a regular part of my life and I needed it, I needed it every day to function. It made me feel better about myself, and eventually it became normal." (Ben)

Another example was Tina, who joined a gym after completion of the programme and went there regularly and independently. The reasons she maintained exercising was her motivation to manage weight and confidence in her abilities to perform exercise correctly. Luke said he was using self-talk. He explained: "You've got to keep saying in your own mind, in your own head what you want to achieve and what you want to do."

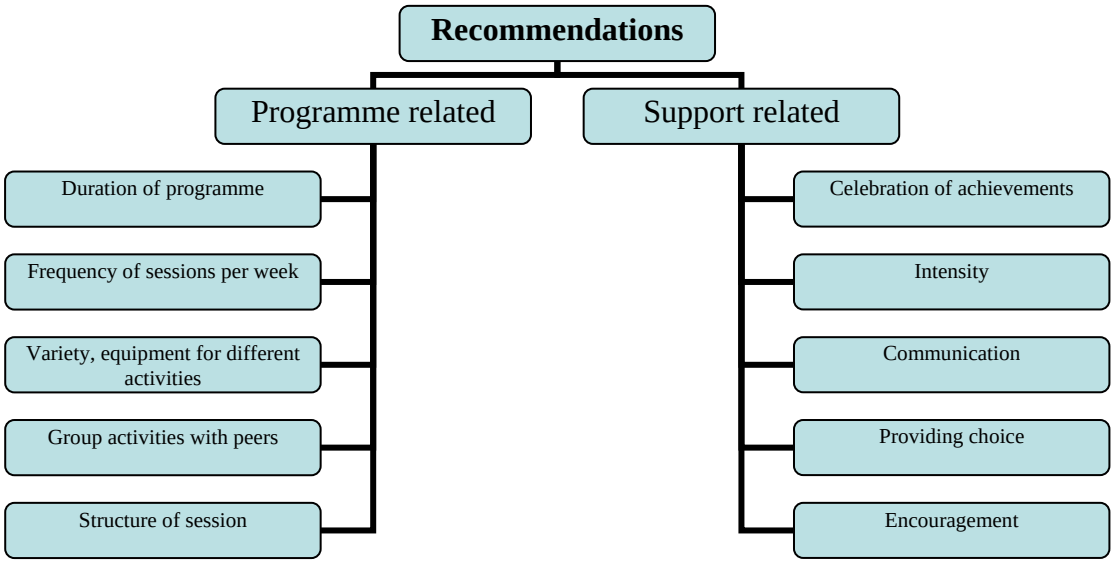
These examples show that multiple factors seemed to be crucial for maintaining physical activity:

- accepting self-responsibility,
- being mentally well,
- experiencing changes/progress,
- having an incentive to exercise,

- having established a pattern/routine,
- being aware of the benefits of exercising,
- feeling confident in one's own abilities to exercise,
- having ongoing social support,
- using self-talk.

6.4.5 Participants' recommendations

Figure 16: The model of participants' recommendations



Recommendations by participants to improve the ABE Programme were related to the programme itself and to the type of support. The following section describes first some general comments about the programme, and then programme related and support related recommendations.

General comments

Participants were mostly satisfied with the service and found it generally beneficial. Comments included:

"I think it's a very good programme and I think the programme can help a lot of people and I think there is a real place for it in the community and it can help a lot of people gain back life … it's enabling people to get more healthy and feel good about themselves." (Ben)

“I think it’s awesome. You were there as often as I wanted you to be there without being pushy and then when I got more into it we went out more often, it was perfect. You went along with me rather than me having to go along with you.” (Ant)

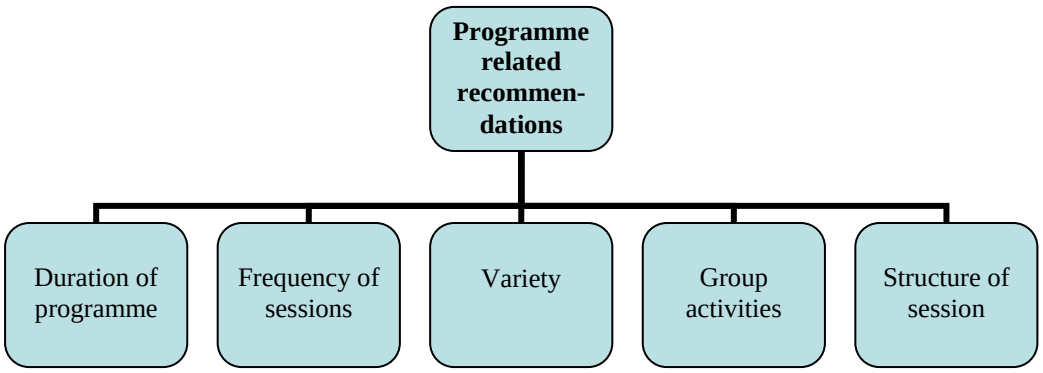
“I think it’s a very worthwhile programme because it is encouraging for people, it motivates them or has the ability to motivate them, encourage them.” (Dan)

These comments illustrate how the service helped some respondents to become mentally and physically healthier. Participants also valued the consideration of their needs and circumstances.

The ABE service was perceived by Max as easily accessible. He “found the process very user friendly, that I got in touch with you guys and you came once a week, that was very simple and straightforward and programmed”.

Programme related recommendations

Figure 17: Programme related recommendations



Duration of programme and frequency of sessions

Recommendations about the programme from service user perspectives were mainly regarding the duration of the programme and frequency of sessions per week, possibly because often the interviewer asked specifically about those points. Some, but not all, interviewees suggested a longer duration and higher frequency:

“Having it longer, longer than three months, like maybe six months, because that would give you more time to see results.” (Tina)

“For me, because I am not working a longer duration would be very beneficial as well as to three times per week, that would be good.” (Jamie)

“That was the hardest part, only doing it once per week… Because sometimes the once a week thing, the gap was too big. ... . Personally for me I think like six months would have been better. I think like to sum it all up for someone like me at least twice a week, and for at least six months.” (Luke)

The arguments for an extension of the service and frequency of sessions varied. Some said that as the time seemed to go very fast, it would result in better outcomes and ‘something to do’. Max argued that a longer duration and a higher frequency would give more time to establish a habit and prevent a relapse. As Max and Luke explained:

“Arguably that patch where I had a remission where I relapse where I didn’t exercise for a while, perhaps if I could have had that for a year of one on one, maybe I would have been less likely to have that relapse, I would have a more established pattern going that I could continue building up from there rather than slipping back for a while and starting again … . But, again, I guess that if it was three times a week it’s probably impractical, but if it was, it just makes it more likely that when I’m for the four days when I’m not with somebody it would be easier to maintain, to start with and building it up, it doesn’t have to stay three times per week but to start with, that would make it easier.” (Max)

”Because, like I said you are fighting other things going on in your head and you go out for an hour or so on the Monday or however long it might be and then you’d come home and you might feel good for an hour or so, but then you are back to, it’s quite easy to slip back into whatever routine you are in for the rest of the week and then like I was going out on Monday morning, even on the Sunday night, Monday morning you have got to fire yourself back up again.” (Luke)

However, the disadvantages of a longer and more intense service are, as Max mentioned, costs, higher staff requirements and the risk of creating dependency on the support person. As a compromise Max suggested an initial intensive support phase followed by a gradual reduction. Jamie pointed out that for meeting the programme's purpose of getting people started with physical activity, the duration of the programme is appropriate.

Variety

Other programme related suggestions included a higher variety of activities. Luke, for example, believed that more variation would avoid boredom. Steve recommended purchasing different equipment for more variety. Exercise in an attractive environment was also recommended to improve variety. Jan, for example, recommended going "near a lake or somewhere really pleasant".

Group activities

One interviewee would have liked to have participated in group activities with peers, such as the ActiveLinks groups from Comcare. Max believed that it "can be enjoyable to be part of a group going for a walk." However, he said that transport can be an issue. Max suggested a pick up service to overcome this problem: "the fact that you came out and picked me up that makes a world of difference".

Structure of session

Structuring the sessions was another recommendation mentioned by one respondent. Jan explained:

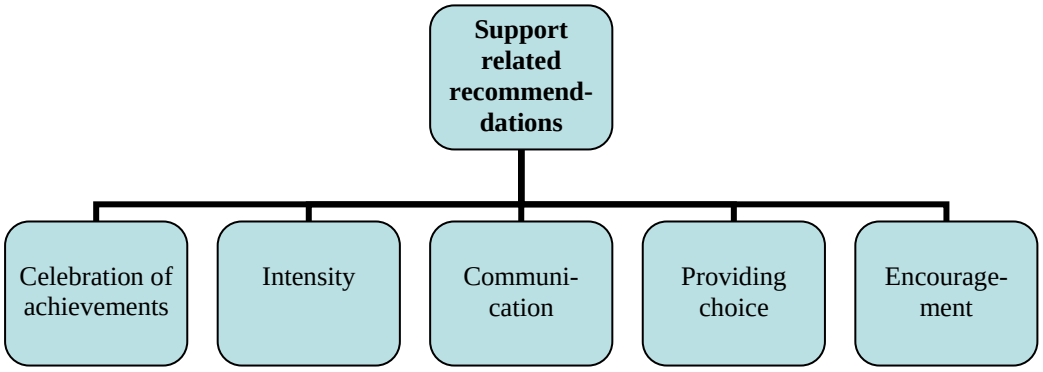
"You have one hour of talking and planning, of what needs to be done, one hour of walking and maybe just 10 minutes of catching up afterwards, how was that, was that any good for you or do we need to do something different for next time?"

According to Jan, any session should have three parts: planning, activity, reflection. The first part would include planning the session according to the

current circumstances and the goal. After the planning phase the activity is completed. At the end of the session, experiences would be reflected on and future activities planned.

Support related recommendations

Figure 18: Support related recommendations



Celebration of achievements

Celebration of achievements played a role in improving motivation and self-esteem. Jan explained: "Acknowledgements of small achievements, because that boosts the morale of the person you are working with and gives them the motivation to do something for themselves." Jan could still remember the certificate with a summary of her achievements that she received after completion of the ABE Programme, although it was four years ago: "I was very pleased to get my certificate. That was a boost of, that sort of summarises what we have been through, but it was something like to show people: see, I have done this, confirmation of my abilities."

Intensity

Interviewees made several recommendations regarding exercise intensity. Some found the support worker was too 'pushy' and the sessions were perceived as being too intense, whereas others would have preferred a higher intensity:

"I think one of the things what I found quite difficult to start was, I felt like, …, it was pushing me too much. And I wasn't quite ready for it." (Ben)

"One thing that I'd like to say personally for myself is that sometimes I don't think I was pushed hard enough." (Luke)

Paying attention to participants' verbal and nonverbal signals was crucial with respect to intensity, as Chris stated: "I actually liked how you seem to take note of how I was willing to push myself and so you started pushing me harder as well."

Communication

Communication about current circumstances appeared to be key to meeting clients' needs. On the one hand clients should be aware of their abilities and express this openly to the support worker. On the other hand the support worker should ask, look and listen to clients and act accordingly. Becoming physically active can be a process, not always linear and sometimes slow. As Ben stated:

"I think everyone is different and everyone can handle different exercises different, it just working out what is actually good for that person and what they can actually achieve…. I think, communicating with the support person and working out, before going to exercise, working out what exercise they can handle, what they actually enjoy and building it into their life bit by bit."

Offer choice

Brad said he would prefer to be offered options of activities instead of making his own decisions. He said: "it would be something like: you can go or we can do this, this or this, instead of: what are your strengths." He argued that he would prefer that approach because he feels he is more a 'follower' than a 'leader'. He acknowledged, however, that would be personally for him and may not suit everybody.

Encouragement

The recommendation to provide encouragement by phone to exercise was mentioned by Chris. He said that he would have found reminder phone calls helpful for his 'discipline' to exercise. He explained: "I think, the occasional

phone call might have been nice saying: Did you do your weights today?...That would have helped with my discipline."

6.5 Summary

Interviewees were mainly male and New Zealand European/Pākehā of various ages and diagnoses. The interviewees provided a wide range of information about their experiences and outcomes of the ABE Programme. This included physical changes such as weight loss, increase of fitness, energy and general activity levels. Furthermore, respondents gave in-depth insights about their personal experiences with exercise in relation to their well-being, mental health and quality of life. Respondents also talked about their attitudes towards exercise and how attitudes changed for some of them as a result of the programme. Support was often regarded as crucial for these outcomes, mainly in terms of encouragement, learning new skills or simply company. Certain personal attributes of the support worker seemed to be important, such as being non-judgemental, encouraging and caring. Often the importance of the availability of other community services and interventions was mentioned by respondents. Recommendations for improvements to the programme included longer duration and more weekly sessions. Others suggested greater variety of activities, structure of sessions and group activities with peers. Multiple factors were indentified as necessary for maintaining an exercise habit after completion of the programme.

7. Discussion

7.1 Introduction

The objectives of this study were to analyse ABE participants' routinely measured assessment results, their experiences, barriers to engaging in physical activity, contributing factors to exercise adherence and to draw recommendations for service improvements, community and policy development and further research. A mixed methods study design was chosen, because it enabled not only the statistical analysis of participants' mental and physical measures, but also provided an in-depth understanding of their perceived outcomes and experiences with the programme, barriers, recommendations and long-term effects.

The discussion integrated both quantitative and qualitative components of this study. It is structured as follows: Sections 7.1 to 7.3 discussion about participants' physical, psychological and social outcomes, experiences and barriers; Section 7.4 physical activity adherence; Section 7.5 participants' recommendations; and Section 7.6 the strengths and limitations of this study.

7.2 Participants' outcomes, experiences and barriers

7.2.1 Physical

Participants' physical outcomes and experiences included blood pressure, weight, fitness, energy/activity levels, and smoking status. Each of these is discussed separately. Statistically, changes of measured blood pressure were only minor, although one interviewee said that he had lowered his blood pressure and came off his blood pressure medication. On average participants' blood pressure was within a healthy range and therefore not a physical health risk factor. Nevertheless, according to the latest New Zealand Health Survey, high blood pressure rates among the population are growing which indicates increased risks for developing heart diseases (Ministry of Health, 2012).

Considering this trend, blood pressure monitoring can be seen as an important part of the ABE Programme and should be continued in order to detect and intervene in potential risk factors early.

The mean BMI of approximately 31 at all three time periods indicates that on average respondents were overweight or obese. Statistically, no significant weight loss occurred. Being overweight was often mentioned as a barrier to exercise. Interviewees pointed out that medication and sedentary lifestyle were major contributors to being overweight and it is widely accepted in the literature that a common side effect of some medications is weight gain (Evans et al., 2005; Fenton & Chavez, 2006; Harrison, 2004; Llorente & Urrutia, 2006). Lifestyle factors seem also contribute to weight gain, for example one study used validated research instruments to interview 102 people with a primary diagnosis of schizophrenia and their lifestyle habits in the UK (Brown, Birtwistle, Roe & Thompson, 1999). Results were then compared to general population rates. This study found that participants had a more unhealthy diet and undertook less exercise than the general population. Therefore, both education about healthy nutrition and exercise may be beneficial to change these habits. According to a systematic review and analysis of published research on exercise and nutrition programmes for people with mental illness, best outcomes regarding weight loss were achieved in programmes that combined nutritional education with exercise (Bartels & Disletes, 2012). Programmes which only provided information about healthy lifestyle or were solely focused on exercise resulted in less weight loss. However, it needs to be acknowledged that using a client-centred approach providing education about nutrition should only be applied with clients who identify weight loss as a goal and would like to make changes to their diet.

On a positive note, results suggest that on average clients of the ABE Programme did not gain weight. Maintenance of weight can sometimes be considered as a positive outcome, particularly for people with a primary diagnosis of schizophrenia. One large observational study compared weight changes of patients from the Worldwide Schizophrenia Outpatient Health Outcomes Database over a three year period (Bushe, Slooff, Haddad &

Karagianis, 2013). This study found that almost half (45%) of the patients taking the common antipsychotic medication Olanzapine gained up to 7% body weight. Especially prone to weight gain were patients with normal weight prior to commencing the medication. Therefore, it is important that health professionals make their patients aware of this potential side effect of the medication and refer them to appropriate services, such as dieticians, Comcare's ActiveLinks or Richmond's ABE Programme, as soon as possible.

Despite these quantitative results, some interviewees reported that they lost weight. This was possibly related to their increase of activity levels. Results indicated that activity levels at the end of the programme were higher than at the beginning, and remained elevated after completion until the follow-up assessment. To assess whether increased activity without support was sustained long-term, more follow-up assessments would be necessary. Increased activity levels can enhance health regardless of body weight according to a systematic review about the protective effects of exercise on physical health risks (Blair & Brodney, 1999). Blair and Brodney concluded that obese but active people appeared to be more protected against physical health risks than non-obese but sedentary people. Some participants in this study reported that an increased activity level led to higher energy levels which had a significant impact on their lives. For example, it enabled them to do things they normally would have not done, such as housework, gardening or even working.

An increase of physical activity levels is important from both public health and economic perspectives because this means that risk factors for developing long-term health conditions such as type 2 diabetes or heart disease are reduced (Pinto Di Raimondo, Tuttolomondo, Fernandez, Arnao & Licata, 2006; Sharman & Stowasser, 2009). The New Zealand Health Survey revealed that not only rates of high blood pressure are increasing, but so too are rates of obesity, diabetes and high cholesterol (Ministry of Health, 2012). Therefore, interventions will increasingly become necessary to prevent and treat physical health problems. In order to detect physical health risk factors, it would be beneficial to ask ABE clients not only about their smoking status but also their alcohol/drug and fruit/vegetable intake. Hazardous alcohol and drug

consumption is regarded by the New Zealand Ministry of Health as a significant physical and mental health risk factor; whereas fruit and vegetables are regarded as the most important components of a healthy diet (Ministry of Health, 2012).

Participants' smoking status on average did not change. A systematic review of studies on the impact of exercise interventions on smoking cessation found no conclusive evidence of a correlation between physical activity and smoking cessation (Ussher, Taylor & Faulkner, 2012). The same authors concluded in another systematic review of studies on the acute effects of exercise on smoking cessation symptoms, that exercise potentially reduces temporarily some of the negative symptoms accompanying quitting, such as nicotine cravings and withdrawal symptoms (Taylor, Ussher & Faulkner, 2007). They recommended further research with larger sample sizes, sufficient interventions and neurobiological examination in order to develop effective and practical methods for combining exercise and smoking cessation. One possibility would be to combine evidence-based smoking cessation interventions (such as nicotine replacement therapy (NRT), quit coaches, telephone support 'Quitline') with exercise. For example, when a client identified that she/he wanted to quit smoking, immediate support could be offered in the form of the above mentioned options. Most mental health services have quit coaches. Ideally, the ABE worker should be a quit coach because then exercise could help simultaneously to limit cravings and withdrawal symptoms.

7.2.2 Psychological

Both quantitative and qualitative components of this study found a strong association between physical activity and participants' mental health, well-being and quality of life. Mental measures (Rosenberg Self-esteem Scale, Warwick-Edinburgh Mental Well-being Scale) showed statistically significant improvements when comparing pre-programme with post-programme assessment results. At follow-up, improvements remained on a higher level, but were no longer statistically significant. The results were consistent with previously conducted internal audits of the ABE Programme (Grueber, 2010;

Richmond New Zealand Trust, 2011c; Turner & Hamilton, 2009). The quantitative results were underpinned by the interviewees. They reported positive effects on self-esteem and mental well-being during the programme. However, some participants said that they found it difficult to maintain those post-exit. The results are also consistent with both meta-analytic and meta-ethnographic reviews which showed a strong association between physical activity and well-being, quality of life and reduced symptoms of depression and anxiety for the time participants were engaging in physical activity (Rethorst, Wipfli & Landers, 2009; Soundy et al., 2012). However, the review of the literature by Buckworth and Dishman (2007) showed that as time since the intervention increased, adherence to physical activity declined.

None of the participants reported a lasting negative effect of exercise on their mental health, but some reported that the positive effect only lasted for a short time. This can be partly explained with the endorphin hypothesis, because endorphins released during aerobic exercise have only a temporary effect of elevating mood (Thoren, Floras, Hoffmann & Seals, 1990). Some participants mentioned that progress towards better mental health was a gradual, sometimes very slow process. This is consistent with the recovery philosophy, which states that recovery from mental illness is a gradual process (Corrigan & Ralph, 2007). Also, Bandura's (1977) Social-cognitive Theory may be useful in explaining this. For example, regular exercise, perceived improvements in fitness/energy levels, weight loss or simply doing something out of the ordinary ('different') were interpreted as personal accomplishments. According to the theory, these accomplishments enhance confidence in one's own abilities (i.e. self-efficacy). The theory suggests that making performance accomplishments conscious, for example by measuring progress regularly, reflecting on experiences and celebrating achievements, is a useful approach. Some participants provided insights into the impact of increased self-efficacy: they felt more confident socialising with other people, left the house independently or tried new things.

One interviewee mentioned that exercising helped her to 'fight' positive symptoms of schizophrenia. Positive symptoms of schizophrenia are, for example, auditory or visual hallucinations (American Psychiatric Association,

2000). In her case, they were auditory. Research on exercise and psychiatric symptoms of schizophrenia suggests that exercise can have a positive impact on the symptoms of this illness. According to the literature review by Faulkner and Biddle (1999), some individuals with schizophrenia reported that they used exercise as a coping strategy to deal with the symptoms. Neurobiological evidence about the relationship between physical activity and these symptoms is emerging. One recent RCT assigned 13 patients with schizophrenia in a day hospital unit in Japan to three months aerobic exercise (two times 30 to 60 minutes walking every day), while 10 patients were assigned to a control group (Takahashi, Sassa, Shibuya, Kato, Koeda et al., 2012). Included in the assessment were brain activation and the positive symptoms at baseline and at three months. The exercise group showed a significant association between increased brain activity and positive symptoms. However, the authors concluded that further neurobiological investigation is necessary to fully understand this relationship. Other limitations of this study were that it had only a small sample size, no follow-up assessments of long-term effects, and the duration and frequency of exercise sessions were very high and possibly not sustainable.

Some interviewees reported a change of cognitions towards more positive, 'clearer' thinking and easier decision making. Etnier and Labban (2012) concluded from their review of research on the relationship between exercise and cognitive functioning that regular exercise potentially improved the performance of a variety of cognitive tasks, such as memory, cognitive flexibility, learning and information processing. This was related to greater brain activity following exercise (Knoechel, Oertel-Knoechel, O'Dwyer, Prvulovic, Alves et al., 2012). One study demonstrated that aerobic exercise significantly improved plasticity of grey matter volume in people with schizophrenia (Pajonk, Wobrock, Gruber, Scherk et al., 2010). Grey matter is associated with the capacity for learning. However, these studies do not explain why and how the programme elicited positive thoughts for people with mental illness. Was the reason the exercise itself, the support person or a combination of both? This will be important to follow up on with further research, because people with mental illness tend to think negatively about themselves.

Most participants in this study said that lack of motivation was the main barrier to exercising. Lack of motivation is a symptom of most common mental disorders according to the DSM-IV (American Psychiatric Association, 2000). According to the Self-determination Theory motivation is a continuum: extrinsic, controlled motivation on one side and intrinsic, autonomous motivation on the other side (Deci & Ryan, 2008). The theory claims that three fundamental needs are required to be fulfilled for autonomous motivation (Markland et al., 2005): (1) *confidence in abilities* (self-efficacy); (2) *feel autonomous in action* (have choice); and (3) *feel related, connected with others* (quality of relationship). Consistent with the theory, participants reported that lack of autonomous motivation was related to perceived low self-efficacy and no social support. One key factor for participants' autonomous motivation seemed to be self-efficacy. Some mentioned that they increased their autonomous motivation by making progress towards goals and learning new skills. Although most participants valued the quality of the relationship with the support worker, and having choice of the activities, these did not support their intrinsic motivation. Professional support was only temporary, therefore the issue of finding 'natural' social resources needs to be addressed in order to increase autonomous motivation. This can include exercise 'buddies', local groups/clubs or family members.

The majority of respondents had a positive attitude towards exercise. This is consistent with the results of the cross-sectional survey of physical activity preferences of people with mental illness conducted by Ussher and colleagues (2007). That study showed that the vast majority had a positive attitude towards exercise, but lack of confidence, support and feeling depressed/stressed prevented them from exercising.

A few participants said that their attitude towards exercise changed from negative to positive or greater importance. Attitude towards behaviour plays an important part in Ajzen's (1991) Theory of Planned Behaviour. According to this theory, attitude contributes to behavioural intentions and predicts behavioural achievements. Ajzen (1991, p. 188) defines attitude as "the degree

to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question". A meta-analytic review examining the effectiveness of the theory for physical activity behaviour showed that the theory is valid and reliable (Hagger, Chatzisarantis & Biddle, 2002). The theory states that attitudes are modifiable and therefore a change of attitude can contribute to a behaviour change.

How are attitudes formed and how can they be changed? The Self-perception Theory by Bem (1967) postulates that attitudes are developed through observing one's own behaviour and through external cues, such as receiving feedback, watching others. Thus, attitudes can be adapted by, for example, cognitive processing of experiences (to increase awareness of one's own behaviour) and role modelling behaviours. This is consistent with the Social-cognitive Theory, which claims that vicarious experiences (modelled behaviour) are an influential source of information (Rosenstock, Stecher & Becker, 1988) and highlights the importance of cognitive processing of information (Bandura, 1977).

Cognitive processing of information and role modelled behaviour may also have played a role in ABE participants' self-awareness. Some respondents said that as a result of the programme they became aware of the benefits of physical activity. Hodge (2010) points out that self-awareness can be enhanced through an analytic, rational self-assessment of feelings, thoughts and motivations. One example of such self-assessment would be to fill out a decisional balance sheet (listing advantages and disadvantages of current situation/behaviour and change of situation/behaviour). For people who are not capable of an in-depth cognitive self-assessment, simple alternatives would be using pictures (for example smileys, such as happy, neutral or sad faces), scaling (for example, asking about mood on a scale from one [very bad] to ten [very good] before and after exercising) or asking simple questions after a session (for example, 'what did you like/dislike about today's session?').

The theories mentioned above point out that social support and relationships are essential for motivation, attitudes and mental health. The next section focuses on this by discussing the role of social support.

7.2.3 Social

Social experiences were related to the support. Support seemed to be crucial for most of the interviewees for encouragement to initiate or maintain exercising. Lack of social support was often mentioned as a main barrier to exercising. In Ussher et al's (2007) survey of people with severe mental illness the majority (68%) said that they had little social support for exercising, but would have liked to be more active and believed that an instructor's advice would be helpful. Most theories about behaviour change (such as Self-determination Theory, Social-cognitive Theory) emphasize the importance of social support. Consistent with the Self-determination Theory, not only support itself, but the quality of the relationship between staff and clients is important. According to the theory, the quality of the relationship is determined by feelings of relatedness and connectedness to others (Deci & Ryan, 2008).

ABE participants valued learning skills, company and conversations. Certain characteristics of the ABE worker seemed to be important to clients, such as being non-judgemental, knowledgeable, caring and 'easy to get along with'. According to Stein-Parbury (2009), these are some of the essential personal characteristics for an effective helping relationship. For Stein-Parbury these characteristics include: *authenticity/congruence* (for example, behaving in alignment with one's true self instead of hiding behind the role of support worker); *respect/warmth* (for example demonstrating genuine interest in the client); and *confidence/assertiveness* (for example, using opportunities for interpersonal contact). Thus, it is important that the ABE worker is aware of these desirable personal characteristics and acts accordingly.

Sometimes difficulties arose when participants exited the programme. This was expressed by some interviewees, who felt 'lost' after finishing the programme. Ending a relationship with a client can have significant negative emotional consequences for clients. For example, one qualitative study which asked 79 patients about their reactions to ending a one-year long therapeutic relationship found that almost one-third of them (28%) had concerns for the future and reported emotions like grief, regret, and anxiety (Planavsky, Mion, Litaker,

Kippes & Mehta, 2001). Although the ABE Programme is only three months in duration, strong connections can potentially develop. Therefore, it is important to address this issue appropriately. Stein-Parbury (2009) postulates that one of the issue involved in ending the relationship is talking about emotions. They should be brought to awareness and expressed openly. The other issue is regarding reviewing the support. The support and significant events should be reviewed. Both help to give the relationship a sense of closure. Reviews are standard practice of the programme. However, these reviews usually focus on the achievement of goals. More emphasis could be given to emotional effects in relation to the termination of the professional relationship.

Long-term personal support has disadvantages, for example it is costly and may create dependency on the support worker. Other solutions are required. This could include group activities or exercise 'buddies'. Another option is technology based support through phone, text messages, social media (such as twitter, facebook) and internet. Research indicates that these approaches are both efficient and cost-effective. For example, a systematic review of research on tailored computer and internet based physical activity behaviour change interventions showed that they can potentially enhance physical activity levels of adults (Neville, O'Hara & Milat, 2009). These interventions are delivered through internet, e-mail, CD-ROM programmes, mobile phones or handheld computers (smartphones, ipads). They use common health education strategies: participants are assessed and, based on this information, individualised feedback and advice is given. The authors concluded that interventions can reach large groups of people, but recommended that further research is needed, especially on different population groups, optimal duration and long-term effectiveness. One example of a recent study (not yet published) is a RCT of the use of mobile phones to encourage people to exercise for the delivery of cardiac rehabilitation conducted at the University of Auckland (2013). This study showed that people who received the mobile phone intervention were more physically active than the control group. The study used personalised text messages with information about the type and intensity of activity, how to overcome barriers to exercise and to stay motivated. The participants of the intervention group also had access to a website with additional information and motivational messages. To the best

knowledge of the researcher, no such programme has been designed and evaluated for people with mental illness. Thus, this would be a worthwhile research project.

Physical activity was often seen by interviewees as ‘one piece of the puzzle’ of support. Additional pieces of the puzzle included counselling, medication and the support of other mental health services. For some, simply the awareness of such services was helpful, without necessarily using them. These statements reinforce the importance of holistic approaches to recovery and collaboration of services. Both the Mental Health Commission (2012) and Ministry of Health (2012a) support the need for multi-dimensional mental health treatments. Collaborative and interdisciplinary care is also a client’s right: the Health and Disability Code of consumer’s rights states that “every consumer has the right to cooperation among providers to ensure quality and continuity of services” (Health and Disability Commissioner, 1996, Right 4, Point 5). Furthermore, research indicates that collaboration among health services improves the overall quality of care (Schmitt, 2001). In order to be effective it is important that teams communicate well, have defined roles and work towards a shared goal (McKinley, Gray & Pullon, 2013). Collaborative approaches of mental health services in Christchurch are becoming more common, for example, frequent e-mail contact; regular interdisciplinary client review meetings; the ‘Community Support Worker Access Pathway Group’ (group of representatives from NGO providers who manage referrals for community support); and informal network meetings for mental health professionals. Possible improvements could include a computerised client information system, which would allow each service access to health related information. This would mean clients do not have to answer similar questions repeatedly, but it does raise issues regarding consent of confidential information.

The social and support aspects of the ABE Programme seemed to play a crucial role for participants. As mentioned previously this also applies to the maintenance of physical activity after completion of the programme. The following section discusses this crucial topic.

7.3 Physical activity adherence

Interviewees indicated that multiple factors contributed to physical activity adherence including accepting self-responsibility, social support, self-efficacy, motivation, positive self-talk and a positive attitude towards exercise. These findings are consistent with Nigg et al's (2008) Physical Activity Maintenance Model which argues that self-efficacy, motivation, personal circumstances/environment and goal setting are the most important mediators for physical activity adherence. However, for people with mental illness this model has limitations. For example, it seems to underestimate the importance of accepting self-responsibility and the role of social support to prevent the high possibility of relapse into sedentary behaviour. The critical role of social support has been discussed previously. Accepting self-responsibility is the ability to choose from options, to make decisions and to take control of one's life (Hodge, 2010). According to Hodge, the foundation for taking self-responsibility is positive self-esteem. Mruk (2006) reviewed the literature regarding evidence based ways to increase self-esteem. These include: having positive emotional experiences (enjoyment); caring treatment by others; being in control over actions; feeling accepted and appreciated by others; and receiving positive, genuine affirmations/feedback. This is consistent with the comments of interviewees, who said that they had positive experiences with physical activity, made progress towards their goals, were in control of activities and felt accepted/appreciated by the ABE worker. These factors may explain the improvements on the Rosenberg Self-esteem Scale.

Often interviewees mentioned that they relapsed into sedentary behaviour after completion of the programme. According to the Transtheoretical Model (TTM), behaviour change is a process which is often not linear and relapses are common. The model differentiates between the following *stages of change* (Prochaska, DiClemente & Norcross, 1992; Prochaska & Marcus, 1994; Prochaska, Johnson & Lee, 2009):

1. Precontemplation (no intention for behaviour change);
2. Contemplation (starting to think about behaviour change);
3. Preparation (making steps towards behaviour change);

4. Action (performing new behaviour);
5. Maintenance (maintaining new behaviour for a minimum of six months);
6. Relapse (going back to previous behaviour) or Termination (no temptation to go back to previous behaviour).

This model implies that people do not necessarily maintain their behaviour change (i.e. physical activity levels) long-term. However, some interviewees said that the programme had a 'planting the seed' effect: they re-started exercising when circumstances allowed. This indicates that they were moving between the contemplation and action stages, but may have found it difficult to attain the maintenance/termination stage. What are possible strategies to support the transition into the action or maintenance stage? The TTM explains how transition from one stage to the other occur and in which activities people engage to change behaviour (Prochaska et al., 1992). This is called the *processes of change,* which differentiates between experiential and behavioural processes (Burkholder & Nigg, 2002; Tomlin & Richardson, 2004):

- Experiential (based on individuals' experiences, for example seeking information, emotional experiences and awareness of internal/external effects of behaviour);
- Behavioural (based on information provided, for example helping relationships, supports of society, positive reinforcement, rewards and other cues for supporting behaviour change).

Extensive research identified which processes and interventions are most beneficial for people in each stage (Prochaska et al., 1992): experiential processes seem to be emphasised during the precontemplation and contemplation stages whereas behavioural processes are dominant in the preparation, action, maintenance and termination stages (Tomlin & Richardson, 2004). Therefore, a combination of experiential and behavioural processes would be most beneficial to promote exercise adherence. This is consistent with Nigg et al's (2008) Physical Activity Maintenance Model and ABE participants' feedback (Section 6.4.4).

One interviewee said that he used positive self-talk to motivate him to exercise. Self-talk is a common strategy within cognitive behavioural therapy (CBT), called cognitive reframing or restructuring (Ledley, Marx & Heimberg, 2010). Cognitive reframing is to change cognitions, for example from negative to positive, for instance: 'I was only able to exercise for ten minutes' to 'I'm making progress, last week I could only exercise for five minutes'; or 'I feel tired today' to 'I'm enjoying the scenery while exercising and I will have a rest afterwards' (Herning, Cook & Schneider, 2005).

CBT hypothesises that cognitions mediate behaviour (Dobson & Block, 1988). A review of meta-analyses about the effectiveness of CBT showed large effect sizes in the treatment of several mental disorders (Butler, Chapman, Fonman & Beck, 2006). Furthermore, there is evidence that CBT can promote physical activity behaviour. One Italian study used CBT to increase physical activity to reinforce weight maintenance in 200 overweight/obese subjects (Villanova, Pasqui, Buzzacchini, Forlani, Manini et al., 2006). Subjects took part in 12 fortnightly CBT group sessions aiming to encourage them to walk daily, measured by pedometer. Steps were measured before and after the six-month programme. The results showed that the percentage of people who completed 5000 steps increased from 24% at the beginning to 84% at the end of the study. On average, subjects doubled the number of steps per day during the duration of the study. Sixty percent of subjects lost weight. No significant weight regain occurred at a one year follow-up, but there were no data about activity level at follow-up. A limitation of this study is that it did not have control groups and therefore and it cannot be concluded with certainty that the increased activity level was the result of CBT. Possibly, the use of a pedometer contributed to motivation to exercise as well. Considering the results of this study and overall evidence about the effectiveness of CBT, however, it would be beneficial to use basic CBT techniques for some clients of the ABE Programme, for example in the manner mentioned above. This applies especially for clients who appear to have self-destructive attitudes, such as negative self-perceptions or unrealistically high expectations of themselves.

Finally, the preparation for competitions potentially improves exercise adherence, according to a review of the literature about motivation to exercise by Vallerand (2007). While he found that this applies more for 'winners' than 'losers', there are a number of events which promote finishing, having fun or socialising rather than winning (for example the walking/running events 'City to Surf' in Christchurch or 'Round the Bays' in Auckland). One study by Warren and colleagues (2011) showed that the preparation for such an event enhanced the exercise adherence of 17 people with a diagnosis of schizophrenia who were in- and outpatients of a mental health facility in the USA. This study consisted of a 10-week training programme with three supervised sessions per week. The study found that 65% of the sample participated regularly. Although this study has limitations (such as no follow-up assessments to show whether exercise was sustained post-event, no control groups and small sample size) the ABE worker can offer support to clients to prepare for and participate in an event. However, clients should not be pressured or feel obligated to participate. According to Self-determination Theory this would increase controlled/extrinsic motivation (and decrease autonomous/intrinsic motivation).

7.4 Participants' recommendations

Respondents' recommendations pertained to both the programme and support. Programme related recommendations were mainly about the overall duration of the programme and frequency of sessions per week. Nobody suggested shortening the programme or reducing the number of sessions per week. The respondents were either satisfied with the duration and frequency or recommended an increase. For several reasons it is difficult to determine the optimum duration of programmes. Firstly, most research studies with a high level of evidence (RCTs) are for interventions between eight and fourteen weeks (Stroehle, 2008) which means the effectiveness of longer interventions is uncertain. Secondly, with only a limited number of support workers it is not possible to provide longer-term support. Thirdly, every person has different requirements. As mentioned previously, instead of changing the duration of the programme, it would be more important to explore other solutions for physical

activity adherence (Appendix 13). If a client, however, only wishes to receive, for example, a 'kick-start' to get into exercise, an activity planner, brief advice about exercise or information about community based groups, the service should last only for the time needed.

Less frequently mentioned recommendations included a greater variety of activities, group activities with peers and changes to the structure of each session. A variety of activities would be beneficial to avoid monotony, but depend on available resources and clients' abilities. For people who are unsure about their preferences, a list of possible activities could be provided. The list should not contain, however, too many options to choose from, because over-availability of choice can, according to Schwartz (2000) potentially decrease well-being. Studies found that choice can also be de-motivating. For example, in one study participants were invited to taste different jams (Jyenger & Lepper, 2000). One group had six different jams to chose from, whereas the other group 24. Thirty percent of the people of the first group bought a jam, compared with only three percent from the other group. Thus, a solution would be to provide a list of approximately six possible activities to choose from and invite participants to rate them.

Regarding group activities, several options are possible: one is to introduce and refer clients to existing community based groups (for example Step Ahead, ActiveLinks). Another option would be to establish small groups for people who live close together. This would combine the benefits of individualised and group programmes. Ultimately, these groups could become self-organised. Again, a higher number of ABE support workers would be required in order to offer this option.

The recommendation made by one respondent to structure sessions in three parts is a common format used in Adventure Based Counselling (ABC), called 'adventure wave' (Schoel & Maizell, 2002). The adventure wave consists of three stages: briefing, activity and debriefing. The briefing stage is the selection and explanation of the activities. The briefing stage is followed by the activity (intervention) and the debriefing stage. The debriefing stage within ABC is

summarised in the ‘What? So what? Now what?’format (Reupert & Mayberry, 2002). It focuses therefore on reflecting experiences of the activity, its personal meaning and possible implications and transfers of the experience for future actions (Estes, 2004).

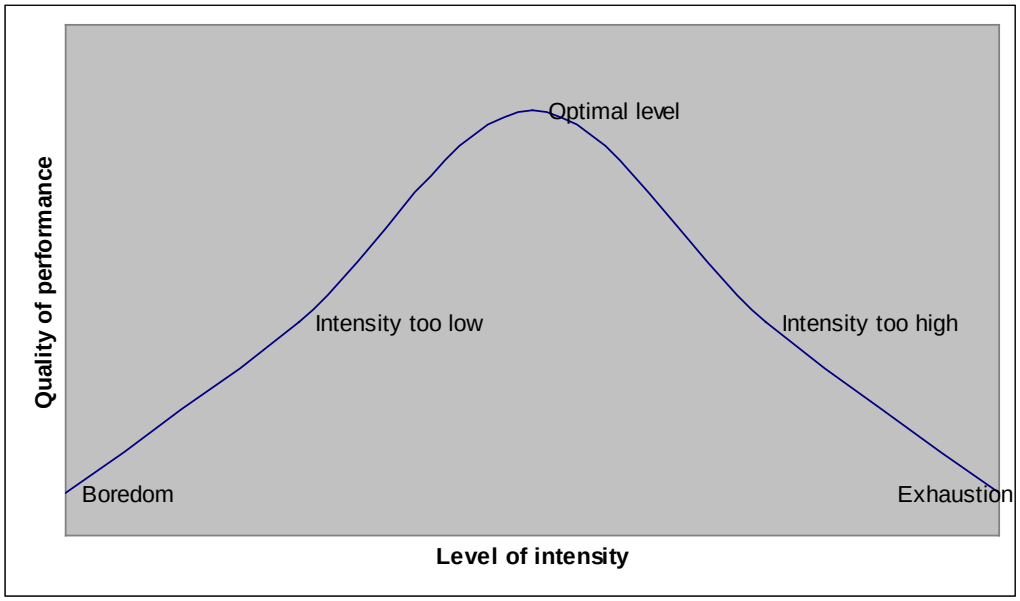
Research by Leberman and Martin (2004) indicates that debriefing should not only take place immediately post-session but also some time after completion of the whole programme. According to the authors, this enhances the transfer of the learning and provides more ‘meaning’ of the experience for participants. Within the ABE Programme this structure is largely applied through briefing (preference of activity chosen by the participant) activity and debriefing (reflection of session and planning next session). There are differences between the adventure wave of ABC and the ABE Programme due to the aims and kinds of activities. The most important difference is the debriefing stage. The debriefing from ABC has the previously mentioned specific format whereas the debriefing process of the ABE Programme focuses mainly on the progress towards clients’ goals. The ‘What? So What? Now What?’ debriefing format may therefore be a beneficial modification for the debriefing stage for some clients of the ABE Programme. Furthermore, the three stages would make sessions more predictable and structured, which may suit some clients.

Support related recommendations included celebration of achievements, perceived level of exercise intensity, communication between client and support worker and choice of activities. According to the Social-cognitive Theory, providing tailored feedback of progress and acknowledging achievements can improve self-efficacy because it provides a sense of achievement (mastery experience). Vallerand (2007) suggests in his review of intrinsic and extrinsic motivation in physical activity, that feedback needs to be autonomy-supportive, believable/genuine and personally important and valued in order to enhance intrinsic motivation. A good example of such feedback is: “Good work! Since you began this program you have made excellent progress. Earlier in this program you were thinking about becoming more active. Now you are doing something about it. You have found a way to make physical activity a regular

part of your life. Congratulations on your efforts" (Marcus, Bock, Pinto, Forsyth et al., 1998, p. 179).

Some participants said that the intensity of sessions was too high, whereas for others it was too low. Both scenarios can have negative impacts on performance and motivation. According to the Yerkes-Dodson Law (Yerkes & Dodson, 1908), perceived low intensity relates to weak performance because the task is not challenging enough (boredom). Perceived high intensity, on the other hand, can lead to exhaustion because it is too challenging (Figure 17). For optimum performance the intensity has to be in the middle between these extremes. Considering this model, it is therefore not surprising that the study by Sexton, Maere and Dahl (1989) found that high intensity activity increased drop out rates. This study allocated 52 people with mental illness randomly to jogging and walking groups. A significantly higher percentage of joggers did not complete the programme, compared with walkers. Thus, it is important to tailor the intensity level to the individual in each session. This can be realised by communication between the client and the support worker, for example by asking the client before the sessions how high the intensity level should be on a scale from one to ten (one: very easy; five: medium; ten: very hard); and then asking during the session for feedback about the intensity level. This is a flexible and easy approach to assess intensity levels. The appropriateness of the intensity of the session can also be reflected after the session. Another option to discuss intensity levels with clients is to use Figure 17.

Figure 19: Adaption of the Yerkes-Dodson curve



7.5 Strengths and limitations of this study

The strength of scientific evidence from mixed methods studies depends on the methods used for the quantitative and qualitative components of the study (Jackson, Fazal & Giesbrecht, n.d.). The strength of evidence of the quantitative component of this study was limited because the quasi-experimental time-series design did not have a control group and therefore it was not possible to be certain that outcomes were related to the programme. Since the study combined quantitative and qualitative methods this weakness could be somewhat mitigated through triangulation. The qualitative component provided important additional information not available from the quantitative analysis, including information about participants' experiences and outcomes, their perceived barriers to physical activity, strategies to physical activity adherence and recommendations to improve the programme.

A potential limitation of both components of the study was that participants were mainly male and New Zealand European/Pākehā. Only a very limited number of women, Māori and people of Pacific origin participated. A broader representation of genders and people with different ethnicities may have raised other perspectives and issues.

A strength of the quantitative component was the availability of multiple valid and reliable mental and physical measures. Limitations regarding reliability applied to the questions on physical activity levels and smoking status because they relied on clients' self-report. One limitation of the quantitative analysis was the small available sample size of only 30 assessment data sets. The statistical variance with this amount of data was high and the statistical power was therefore relatively low. Also, the small sample size prevented the analysis of specific variables (such as gender, diagnoses or age groups) and their correlations with each other (such as age/gender/diagnosis and self-esteem). The availability of follow-up assessment results strengthened the quantitative results, because they indicated whether improvements could be maintained. However, a prolonged follow-up period would be necessary to investigate long-term effects.

Regarding the qualitative component of the study, it is important to be mindful of the motives of respondents (Josselson, 2007). It was likely that people who agreed to be interviewed wished to share a story and were 'successful' participants. Josselson points out that interviewees control what they want to share and they should be regarded by the researcher as the expert. However, interviewees may perceive a power imbalance favouring the researcher, who they believe is the expert and has an established opinion (Josselson, 2007). However, this was limited because the researcher had established a trustful relationship with the participants prior to the interview. Also, questions followed the interview guide and the researcher was mindful to keep his own opinions from influencing those of the participants.

It was expected that a limitation of the qualitative study would be the time gap between participation in the programme and the interview because of potentially reduced memory recall. However, this did not appear to be the case. Even interviewees who participated a few years earlier had a very detailed memory of their experiences with the programme. As people who declined to participate in or did not complete the ABE Programme were not interviewed, it was not possible to assess the full scope of barriers to engaging in a physical activity service. However, regardless of the fact that probably more 'successful' clients

participated in the interviews, a wide range of barriers to being physically active and possible solutions were nevertheless articulated.

As the interviewer/researcher and the programme facilitator were the same person, personal biases and idiosyncrasies may have influenced the interviews (Johnson & Onwuegbuzie, 2004). However, for this study the pre-existing relationship was not a disadvantage. For example, it was not necessary to build rapport with the interviewees, because a trustful relationship was already established. Also, several methods were used to establish trustworthiness (credibility, transferability, dependability, confirmability). These included, among others, triangulation, prolonged field experiences, member checking, peer examination and critical reflexivity. The following table summarises the strengths and limitations of this study (Table 14).

Table 14: Summary of the strengths and limitations of this study

	Strengths	**Limitations**
Mixed methods	• Triangulation • Broad range of ages and diagnoses	• Mainly male and New Zealand European/ Pākehā participants
Quantitative study	• availability of multiple physical and mental measures • availability of follow-up assessment results	• Lack of control group(s) • not all measures are validated and reliable • only one follow-up assessment • short duration of programme • small sample size
Qualitative study	• Participants' perspectives of programme	• Interviews only of 'successful' participants
	• Researcher and programme facilitator are the same person • time gap between participation in programme and interview	

7.6 Summary

The results of this study regarding participants' physical outcomes and experiences reinforce that more emphasis should be placed on early intervention, multiple and collaborative operating support systems in order to prevent weight gain and potential long-term sedentary behaviour. This includes, for example, a close collaboration with primary health care providers because that is where people with emerging mental health issues likely present first.

In terms of psychological and social/support outcomes and experiences the results of this study are consistent with research and behavioural theories/models, namely the Social-cognitive Theory, Self-determination Theory, social support theories, Theory of Planned Behaviour, Self-perception Theory and the Transtheoretical Model. However, the findings of this study gave these theories meaning from the perspectives of people with mental illnesses. For example, they highlighted the need for professional support as a mediator for reducing the lack of natural social connections, improving mood, self-awareness and changing the attitudes of people with mental illness. This study also showed that these changes occurred by 'doing' without necessarily 'talking about it'. Participants seemed to have 'made up their own mind' and integrated experiences into their lives. Does that mean cognitive processing for people with mental illness is less important than claimed by some theories? Or would it further enhance these positive changes? The answers to these questions likely depend on several factors, including the cognitive abilities of the individual.

Participants revealed that multiple factors played a role in physical activity adherence. Some of these factors go beyond physical adherence theories (such as the Physical Activity Maintenance Model) for the general population, for example, the importance of the mental health condition, accepting self-responsibility or professional support to overcome barriers to exercise. Relapse to sedentary behaviour without support was common among participants, although for some the ABE Programme seemed to have 'planted the seed'. They were continuing to exercise when circumstances allowed them to. Moreover,

participant reports indicated that they were using strategies from cognitive behavioural therapy. They recommended the use of technology based interventions to help with exercise adherence.

In summary, participants reported several barriers to exercise (for example feeling overweight, lack of energy, motivation). Support was needed to overcome these barriers and achieve certain outcomes and experiences (for example weight loss, increased energy, motivation). Participants' barriers were related to their outcomes and experiences. After completion of the ABE Programme some participants maintained physical activity (independently or with other services) whereas others did not.

Overall the ABE Programme seemed to have enhanced participants' physical, psychological and social well-being and consequently quality of life. However, complementary support mechanisms seem to be necessary for long-term sustainability of these positive outcomes.

8. Conclusion

8.1 Introduction

The research questions of this study were:

- What are the outcomes and experiences of participants of the ABE Programme?
- What are their barriers engaging in physical activity and which factors contributed to exercise adherence?
- What recommendations can be drawn from the findings for service improvements, community and policy development and for further research?

Very limited research into physical activity programmes for people with mental illness has been conducted in New Zealand and worldwide, with only a few published studies from service users' perspectives. This mixed method study contributed to filling this gap by reviewing relevant literature; analysing participants' physical and mental assessment results; and interviewing participants about their outcomes and experiences with the programme, barriers to exercise and recommendations for programme improvements.

8.2 Participants' outcomes, experiences and barriers

The results of both the qualitative and quantitative components of this study justify the assumption that the ABE Programme increased participants' perceived quality of life, well-being and contributed to their recovery. The qualitative findings of this study not only reinforced quantitative results, but also enhanced them and gave them 'meaning'. The researcher was highly impressed by the way respondents articulated their views, as to a large extent he was not aware of their personal experiences, outcomes, barriers and the short/long-term effects of their involvement with the ABE Programme. Respondents mentioned physical, mental and social outcomes and experiences as a result of participating in the ABE Programme. Therefore, the ABE

Programme has multi-dimensional functions which are beyond its main purpose of promoting physical activity.

The study highlighted the importance of professional support in participants' overcoming barriers to exercise and achieving outcomes. Perceived barriers to exercise pre-ABE Programme (for example feeling overweight, low energy levels, lack of confidence) were related to perceived outcomes during the programme (losing weight, increasing energy level, gaining confidence). The ABE Programme was not only important for overcoming barriers but also for experiencing something different/unusual and learning new skills. It was important for the participants that the support worker is knowledgeable, able to build rapport, have good communication skills, a caring, non-judgemental attitude and is responsive to clients' needs. Thus, to successfully support people with mental illness to engage in physical activity, these seem to be necessary attributes of the support worker.

8.3 Physical activity adherence

Multiple factors contributed to exercise adherence (such as accepting self-responsibility, experiencing stable mental health, social support, making progress towards goals, establishing a pattern, self-efficacy) and several strategies were used by respondents to maintain exercise (such as having incentives to exercise, using positive self-talk). Relapse to sedentary behaviours was common among respondents without subsequent support. However, the programme seemed to have a 'planting the seed' effect for some. Even years after completion they remembered beneficial aspects of the programme.

In order to enhance physical activity adherence, strategies listed in Appendix 13 and motivational interviewing techniques (Appendix 14) can be used. A 'trial and error' approach to find appropriate strategies may be necessary for people who are not sure 'what works' for them. Suggestions include the use of text messages, e-mails, phone calls and social media as cost-effective and efficient ways to enhance motivation to exercise; and to introduce clients to other

services; and investigate other possible options for ongoing social support (such as family, friends, 'buddies').

Another strategy to solve the issue of lack of social support for maintaining exercising would be to increase the number of ABE support workers. A higher number of available ABE employees could offer prolonged support for clients who require it and offer group activities in local areas. Ultimately, groups would continue self-organised without the need for an ABE worker.

The results of this study are highly valuable not only for future development of the ABE Programme, but also for mental health policy, community development and for identifying further research requirements. The following sections make recommendations in these areas.

8.4 Recommendations

Based on the literature review, the findings from the quantitative analysis of the assessment results and the qualitative descriptive study, recommendations are made for improvement of the ABE Programme, mental health services, community and policy development, and suggestions for further research.

8.4.1 Service delivery

In order to improve the ABE Programme, the following recommendations are made; firstly in relation to the programme, secondly in relation to the support for participants:

Programme related recommendations:

- Emphasise more the combination of exercise and education. Education could include teaching participants' skills (such as how to swim more efficiently, correct postures, exercise techniques); providing brochures; or giving brief advice about healthy nutrition and benefits of exercise.

- The duration of the programme remains at three months (unless clients' goals only require short-term support, such as finding a community group). It may be feasible to tailor frequency of sessions per week to the individual, for example two or three times per week. However, this requires more ABE employees or a reduction of case load. More ABE workers could also offer follow-up support and group activities for clients who do not wish to be referred to a different service.
- Some clients may benefit from the brief-activity-debrief structure of sessions and the 'What? So what? Now what?' format to debrief experiences can be applied. This possibly enhances cognitive processing of experiences and therefore self-efficacy.
- Celebrate successes and provide autonomy-supportive, believable and personally important and valued feedback for achieving goals. This could be in the form of certificates or structured verbal/written feedback.
- Assess clients' alcohol/drug and fruit/vegetable intake. This would detect potential physical health risks and clients could be referred to a dietician or other specialist if required.
- The ABE worker should be a quit coach because then exercise could reduce withdrawal symptoms for clients who would like to quit smoking.

Support related recommendations:

- For some clients it may be beneficial to provide a short list of (for example six) possible activities to choose from and a calendar with monthly activities within the community. Clients can identify events in which they would like to participate and be offered support to prepare for those events. It is important to ensure that the main purpose of the event is finishing and socialising rather than winning.
- Ensure clients have a sense of achievement and emotionally positive experiences with physical activities which are different from their usual life (such as exercising in pleasant scenery, walking up a hill) because these can increase their self-efficacy.
- Encourage clients to discuss and eventually write down feelings, thoughts, motivation and attitudes towards exercise, especially when people appear to be

ambivalent towards exercise. If clients find this cognitively too challenging, possible solutions are the use of pictures (for example smileys), scaling (for example: asking about mood on a scale before and after exercising) or asking simple questions after a session (for example: 'what did you like/dislike about today's session?').

- Ensure ongoing communication about the intensity level and its suitability, for example by using a one (very easy) to ten (very hard) scale or the adaptation of the Yerkes-Dodson curve (Figure 17).
- Encourage clients to reframe negative cognitions regarding exercise into positive ones (cognitive reframing). For example: change 'I was only able to exercise for 10 min' to 'I'm making progress, last week I could only exercise for 5 min' (Herning, Cook & Schneider, 2005).
- Bring the professional relationship to closure by not only reviewing the programme but also discussing emotions related to ending the professional relationship in order to limit clients' difficulties after completion.

8.4.2 Mental health services, community and policy

Mental health and physical activity promotion interventions need to be multi-dimensional to be effective, ranging from individual, family, community, national, service provider to policy level. Thus, funding is required for interventions on all these levels.

Furthermore, in order to cope with the growing number of people with mental health issues an increased number of healthy lifestyle and physical activity interventions for people with mental illness will be necessary. This applies especially for the Canterbury region because of the higher average rate of diagnosed common mental health disorders (Ministry of Health, 2013). It is important that facilitators of such programmes are appropriately skilled regarding attitudes towards people with mental illness, knowledgeable about physical activity, nutrition, motivational interviewing and client-centred approaches.

It is also important that health professionals (such as GPs, nurses, case managers, CSWs, psychologists, psychiatrists) are aware of the availability of existing services, so they can refer their clients as soon as they present with mental health distress. In order to increase awareness about the availability of services, brochures/referral forms and presentations can be provided to different providers, such as medical centres, hospitals, PHOs, mental health service providers, libraries, education providers (polytechnics, universities).

Overall a more holistic approach to interventions with close collaboration between different services and early intervention is needed. For example, a healthy lifestyle mental health support worker should be available in medical centres and other primary care centres as part of a multi-disciplinary team. This would make communication between services easy, fast and efficient. Healthy lifestyle service providers from different agencies should collaborate more closely with one another, for example by referring clients, regular network meetings and a shared computerised client health information system, which ensures privacy and confidentiality.

Finally, it is recommended to offer increased discounts to enter leisure facilities (for example 50% for Community Services Card holders instead of 25%). This would provide a genuine incentive and make it more affordable for people on low incomes to enter these facilities.

8.4.3 Further research

Although this study contributed to the limited research about participants' outcomes and experiences with an individualised community mental health physical activity intervention, further research is recommended: firstly, regarding general issues of physical activity and mental health, and secondly, regarding the ABE Programme itself.

Research requirements regarding general issues of physical activity and mental health

Further research is needed to find efficient (and cost-effective) ways of increasing post-programme sustainability and limit the barriers to physical activity for people with mental illness. For example, Nigg et al's (2008) Physical Activity Maintenance Model could be scientifically tested and adapted on its applicability for people with mental health issues. Although technology based (computer/internet, mobile phone, smart phone) motivationally tailored physical activity interventions have been developed and evaluated in different settings, so far no research has been conducted on the effectiveness of such interventions for people with mental illness.

Moreover, further understanding about how and why physical activity affects specific mental illness symptoms (for example, positive symptoms of schizophrenia); thought processes (for example, the impact of exercise on positive thinking and the role of cognitive processing of experiences for people with mental illness); and smoking cessation (for example, studies with larger sample sizes, sufficient interventions and neurobiological examination) is needed in order to develop more effective interventions. Studies which consider gender, ethnic and age differences are also needed. This would be beneficial in order to, for example, identify issues which may require programme adaptation to meet specific needs. Overall, experimental and quasi-experimental studies with clinical populations, larger sample sizes and long follow-up periods are required to enhance evidence of the (long-term) effectiveness of physical activity initiatives. If large sample sizes are difficult to recruit, single subject experimental designs may be a suitable alternative. Also, non-experimental qualitative studies are necessary for detailed, in-depth information about subjective experiences and perspectives (for example about the relationship between exercise and hallucinations, cognitive processes, gender and ethnicity). Grounded theory methodology could be applied in order to develop a theory; for example, how people with mental illnesses make behavioural changes.

Research suggestions regarding the ABE Programme

The results of this study provided some evidence of the effectiveness of the ABE Programme, but further research is needed to draw firm conclusions. Although a RCT would be beneficial, at this stage it is not realistic to recruit control groups with suitable sample sizes. As an alternative, it is recommended that single subject studies with small sample sizes be undertaken. This would give the opportunity to trial different interventions and their effectiveness. Several data collection methods can be used: regular physical and mental health measures, surveys and interviews. Each study could trial different interventions, including:

- technology supported interventions,
- motivational interviewing,
- group activities,
- cognitive behavioural therapy,
- multiple versus one session per week,
- cognitive processing of experiences (for example 'What? So what? Now what?' format),
- different durations of programme (for example one month versus six months).

It is also recommended that there be another internal analysis of the assessment data with a larger sample size. This would strengthen statistical power. Moreover, an analysis of the WHOQOL-Bref measure of ABE clients would indicate whether the perceived quality of life changed over the period of the programme. Considering the results of this study, it can be hypothesised that potentially the physical, psychological and social domains of the questionnaire might improve. If results are contradictory (i.e. a decline/no change of quality of life domains), it would open discussions about possible explanations. Results of the WHOQOL could also be compared to the Rosenberg Self-esteem Scale and Warwick-Edinburgh Mental Well-being Scale. For example, is there a relationship between clients' perceived self-esteem and psychological quality of life, or between weight loss and physical, social, psychological quality of life? Are there age, gender or ethnic differences? This would not only further enhance the validity of results, but also provide further insights into clients' situations which may have consequences for the service delivery. For example,

if there were significant differences in gender, it might be beneficial to have both a female and male ABE worker.

Another option for prospective research is to investigate referrers' perspectives on the ABE Programme. This could be in the form of a survey, group or individual interviews. This would provide valuable information about the impact of the programme on 'their' clients from an external point of view: what differences did they notice? What are their recommendations to improve the programme?

A further research option is to examine how mental health agencies, medical centres, PHOs and hospitals perceive gaps in services and opportunities regarding physical activity and healthy lifestyle interventions and initiatives for their clients with mental illness. This would provide valuable information about further development of the ABE Programme and a basis for regional and national health policies. Possible research methods include group or individual interviews and surveys.

In order to make it easier to conduct publishable research within Richmond Services Ltd., it is strongly recommended that consideration be given to seeking consent on service entry from each client for their fully anonymous assessment data (such as the WHOQOL-Bref) to be available for service research purposes. This would make a difficult retrospective recruitment process redundant. Without this kind of consent, however, analysis of routinely collected data will not benefit the wider community and will remain usable only for internal audits.

8.5 A final word

This research project established robust evidence about the effectiveness of the ABE Programme and gave suggestions about its improvements. It raised issues that challenge not only the mental health sector but also regional and national health policies. Both the Ministry of Health's 'Rising to the Challenge: Mental Health and Addiction Service Development Plan 2012-2017' (2012a) and the

Mental Health Commission's (2012a,b) 'Blueprint II' strongly suggest the involvement of service users in planning and delivery of services. They also give very strong signals that service providers should strive to innovate, measure the effectiveness of interventions, emphasise early intervention, increase access to services and improve collaboration with other services. This study kept all these perspectives in mind. Clearly, there is a need for a variety of mental health services, and physical activity and healthy lifestyle promoting interventions will become increasingly important. This is recognised by the Ministry of Health (2012a, p. 26) who require all mental health services to "work to protect and improve the physical health and wellbeing of people with low prevalence conditions [meaning serious mental health and addiction conditions] and to promote healthy lifestyles." Also, the Mental Health Commission's Blueprint II states that one key priority is to "provide lifestyle interventions with a focus on increased physical activity, good nutrition" (2012b, p. 41).

"The unexamined life is not worth living"

Socrates

"The unexamined intervention is not worth doing"

Vikki L. Vandiver

9. References

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10. Appendices

Appendix 1: Assessment form for the ABE Programme

Appendix 2: The New Zealand version of the WHO Quality of Life questionnaire (WHOQOL-Bref)

Appendix 3: Consent form to use quantitative data

Appendix 4: Consent form to be contacted by researcher to participate in interview

Appendix 5: Information sheet (Data analysis)

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Appendix 7: Approval from Richmond Services Ltd.

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Appendix 9: Rosenberg Self-esteem Scale

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Appendix 11: Question guide for interviews

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Appendix 13: Possible strategies to enhance exercise adherence (Weinberg & Gould, 2011)

Appendix 14: Effective motivational interviewing techniques (Miller & Rollnick, 2002)

Appendix 1:

Assessment form for the ABE Programme

Name:

Assessment Form for the ABE Programme

	Before	After	Follow up
Date			
Blood Pressure (Systolic / Diastolic)			
Weight (kg)			
BMI			
Rosenberg Self – Esteem Scale			
Mental Well-being Scale			
Physically active for 30 min or more			
Smoking (cigarettes per day)			
Long term Goal:			
Short term goals:			
Preferred number of sessions per week:			
Importance (from 0 to 10): **Confidence:** **Readiness:**			
Action steps:	Responsi-bility	By when	Comment
1. 2. 3.			

Appendix 2:

The New Zealand version of the WHO Quality of Life questionnaire (WHOQOL-Bref)

World Health Organisation Quality Of Life Questionnaire

NEW ZEALAND VERSION

OF THE NZ-WHOQOL- BREF

NAME:
DATE:

Instructions:

This questionnaire asks how you feel about your quality of life, health, and other areas of your life. Please answer all the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the **last two weeks**.

For example, thinking about the last two weeks, a question might be:

How much do you worry about your health?				
Not at all 1	A little 2	A moderate amount 3	Very much 4	An extreme amount 5

You should circle the number that best fits how much you have worried about your health over the last two weeks. So you would circle the number **4** if you worried about your health "**very much**".

How much do you worry about your health?				
Not at all 1	A little 2	A moderate amount 3	Very much (4)	An extreme amount 5

If you have worried "**Not at all**" about your health you would circle number **1**. Please read each of the following questions, assess your feelings, and circle the number on the scale for each question that fits best for you.

The questionnaire:–

Please read the question, assess your feelings OVER THE LAST TWO WEEKS **and** circle the number **on the scale for each question that gives the best answer for you.**

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5

		Very dis-satisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2	How satisfied are yo your health?	1	2	3	4	5

The following questions ask about how much **you have experienced certain things in the** last two weeks**.**

		Not at all	A little	A moderate amount	Very much	An extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely **you have experienced** or **were able to do certain things in the** last two weeks. **Circle your best answer number.**

		Not at all	A little	A moderate amount	Very much	Extremely
10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your body appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information you need in your day-to-day life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5
15	How well are you able to get around physically?	1	2	3	4	5

The following questions ask about how good or satisfied **you have felt about aspects of your life over the** last two weeks.

		Very dis-satisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18	How satisfied are you with your capacity for work	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied	1		3	4	5

	are you with your personal relationship?		2			
21	How satisfied are you with your sex life?	1	2	3	4	5
22	How satisfied are you with the support you get from your friends?	1	2	3	4	5

		Very dis-satisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety or depression?	1	2	3	4	5

The following question asks how much **you have experienced certain things in the** last two weeks.

		Not at all	A little	A moderate amount	Very much	Extremely
27	To what extent do you have feelings of belonging?	1	2	3	4	5

Please answer two additional questions by ticking the appropriate boxes

(i) Was staff assistance required to complete this questionnaire?
YES – Some staff assistance was required ☐
NO – No staff assistance was required ☐

(ii) If you ticked YES, please put ticks in the appropriate boxes to indicate the amount and type of assistance given.

	Was staff assistance required to	For most or all of the questions	For around half the questions	for few or none of the questions
a	Read out the main question			
b	Read out the rephrased question			
c	Read out the prompt			
d	Mark the responses down			

Appendix 3:

Consent form to use quantitative data

Health Sciences Centre

27. August 2012

Tel: +64 3 364 2987, Fax: + 64 3 364 2490
Email: healthsciences@canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Consent to use my data

Study: "Experiences and Outcomes of the participants of the Activity Based Experience (ABE) Programme at Richmond New Zealand Trust Ltd.: a mixed-methods study"

Student/Researcher: Arno Grueber

Supervisors: Assoc Prof Pauline Barnett; Dr Jeffrey Gage, Health Sciences Centre, University of Canterbury.

- I understand that Margaret Bates, who approached me, is acting on behalf of Arno Grueber.

- I have read the Information Sheet for this study. I understand what this research study is about, that it is being undertaken by Arno Grueber, and that any questions have been answered.

- I agree that my data can be used for this study. The data will remain anonymous, saved on a spreadsheet and statistically analysed.

- I understand that findings of this study will be publicly available as a Masters thesis and may also be published in an academic journal or presented at a conference but I will not be personally identified in any publication or presentation. All personal information including my identity will be kept completely confidential.

- I have had time to consider whether my data can be used for this study.

- I understand that if I have any queries or concerns at any stage I can contact Margaret Bates (Client Engagement Facilitator of Richmond New Zealand Trust) or the primary supervisor Assoc Prof Pauline Barnett at the Health Sciences Centre, University of Canterbury.

  Contact details:
  Magaret Bates (mabates@richmond.org.nz, mobile: 027 6879175, phone: 371 5572
  Assoc Prof Pauline Barnett (pauline.barnett@canterbury.ac.nz, phone: 366 7001 ext 3692)

- I am aware that I can withdraw from my consent at any time without penalty and having to give a reason. Withdrawal will not affect any eligibility for care provided by Richmond New Zealand Trust.

- I wish to receive a summary of the findings: YES / NO

- I understand that if I have any queries or concerns regarding my rights as a participant in this study, I may wish to contact an independent Health and Disability Advocate as follows:

  Free Phone: 0800 555 050
  Free Fax: 08002787 7678
  Email: advocacy@hdc.org.nz
  Website: www.advocacy.hdc.org.nz

Name (please print):……...

Signature: .....

Date: .....

Contact Information:

Address:.....

Phone:.....

Email: .....

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee. Approval Number: HEC 2012/77

Appendix 4:

Consent form to be contacted by researcher to participate in interview

Health Sciences Centre

27. August 2012

Tel: +64 3 364 2987, Fax: + 64 3 364 2490
Email: healthsciences@canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Consent to be contacted by researcher to participate in interview

Study: "Experiences and Outcomes of the participants of the Activity Based Experience (ABE) Programme at Richmond New Zealand Trust Ltd.: a mixed methods study"

Student/Researcher: Arno Grueber

Supervisors: Assoc Prof Pauline Barnett; Dr Jeffrey Gage, Health Sciences Centre, University of Canterbury.

- I have read the Information Sheet for this study. I understand what this research study is about, that it is being undertaken by Arno Grueber and that any questions have been answered.

- I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time and without giving a reason and any data I have provided will be permanently deleted.

- I am aware that I have the opportunity to have an advocate or support person present at the interview if I wish. Also, if necessary, a referral to a mental health worker can be made immediately.

- I agree that my contact details (address, phone number) can be released to Arno so that he can arrange with me a time and place for the interview.

- I also understand that I may be contacted by Arno within four weeks after the interview for a follow up meeting or telephone call to clarify any items from the interview.

- I understand that findings of this study will be publicly available as a Masters thesis and may also be published in an academic journal or presented at a conference but I will not be personally identified in any publication or presentation. All personal information including my identity will be kept completely confidential.

- I have had time to consider whether to take part.

- I understand that if I have any queries or concerns at any stage I can contact Margaret Bates (Client Engagement Facilitator of Richmond New Zealand Trust) or the primary supervisor Assoc Prof Pauline Barnett at the Health Sciences Centre, University of Canterbury.

  Contact details:
  Margaret Bates (mabates@richmond.org.nz, mobile: 0276879175, phone: 371 5572)
  Assoc Prof Pauline Barnett (pauline.barnett@canterbury.ac.nz, phone: 366 7001 ext 3692)

- I understand that Margaret Bates, who approached me to participate in the interview, is acting on behalf of Arno Grueber.

- I am aware that I can withdraw from my consent at any time without penalty and having to give a reason. Withdrawal will not affect any eligibility for care provided by Richmond New Zealand Trust.

- I wish to receive a summary of the findings: YES / NO

- I understand that if I have any queries or concerns regarding my rights as a participant in this study, I may wish to contact an independent Health and Disability Advocate as follows:

  Free Phone: 0800 555 050
  Free Fax: 08002787 7678
  Email: advocacy@hdc.org.nz
  Website: www.advocacy.hdc.org.nz

Name (please print):……..

Signature: .....

Date: .....

Contact Information:

Address: .....

Phone: .....

Email: .....

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee. Approval number: HEC 2012/77

Appendix 5:

Information sheet (Data analysis)

Health Sciences Centre

August 2012

Tel: +64 3 364 2987, Fax: + 64 3 364 2490
Email: healthsciences@canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Information Sheet (data analysis)

Study: "Experiences and Outcomes of the participants of the Activity Based Experience (ABE) Programme at Richmond New Zealand Trust Ltd.: a mixed methods study"

As the Client Engagement Facilitator at Richmond New Zealand Trust Limited, I am contacting you on behalf of Arno Grueber to invite you to contribute information to a research project to evaluate Richmond's ABE Programme. Arno is currently enrolled as a Master student at the Health Sciences Centre, University of Canterbury. Participation in this study is voluntary and non-participation will not affect any eligibility for care provided by Richmond New Zealand Trust.

Please take time to read the following information carefully and discuss it with others if you wish. Please contact us if you require further information.

What will I be asked to do?

If you would like to participate in this research project, you will be asked to sign the enclosed consent form that will give Arno Grueber the permission to analyse the data collected at entry, exit and post exit of the ABE Programme. This included blood pressure, weight, Rosenberg Self-esteem Scale, possibly also the Warwick-Edinburgh Mental Well-being Scale, number of days per week physically active, number of cigarettes smoked per day and goal achievement rating and results of a satisfaction survey.

What will happen to the information?

Your data will be made anonymous by deleting all identifying information, and then be entered onto a spreadsheet. All data will be statistically analysed by Arno and discussed with his supervisors at University of Canterbury. No other person will have access to these data which will be stored on a password protected computer.

What are the benefits and risks of participating in this study?

This research project will be conducted in order to find out how physical activity impacts on peoples' well-being, recovery and quality of life and will help to identify how the ABE Programme can be improved with a higher standard of service and better outcomes for clients.

What will happen to the results of this study?

Material from this project will be published as a Masters thesis. A summary of findings will be made available to you if you wish. Findings may also be published in an academic journal or be presented to interested professional groups within the New Zealand mental health sector or at a conference. However, you will not be personally identified in any publication or presentation.

Who is supervising the research?

This research is supervised at the University of Canterbury, Health Sciences Centre. Supervisors are Assoc Prof Pauline Barnett and Dr Jeffrey Gage. The project is also under the umbrella of Richmond New Zealand Trust Ltd. This study is supported and approved by Service Delivery Manager Debbie Browne and Operational Manager Martin Cole.

Who funds the research?

This research project is being carried out as part of the requirements for a Master's degree in Health Sciences from the University of Canterbury. Both the Health Sciences Centre and Richmond New Zealand Trust Ltd. are contributing funds towards the study.

Who has reviewed this study?

This research has received ethical approval from the Human Ethics Committee of the University of Canterbury.

What do I do now?

If you wish to participate please sign the attached consent form and mail it back to Margaret Bates in the enclosed pre-paid envelope. If you have further questions please feel free to contact Margaret Bates by phone, text or email:
Phone: 03 371 5572
Mobile: 027 687 9175
Email: mabates@richmond.org.nz

Who do I contact if I have any concerns about this research?

Assoc Prof Pauline Barnett
Supervisor of this project
University of Canterbury
Phone: 03 366 7001 ext 3692
Email: pauline.barnett@canterbury.ac.nz

The Chair
Chair, Human Ethics Committee
University of Canterbury
Phone: 3 364 2987 ext 6390
Email: human-ethics@canterbury.ac.nz

Thank you for your consideration of participation in this study.

Yours sincerely

Margaret Bates
Client Engagement Facilitator
Richmond New Zealand Trust

Appendix 6:

Information sheet (Interview)

Health Sciences Centre

August 2012

Tel: +64 3 364 2987, Fax: + 64 3 364 2490
Email: healthsciences@canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Interview Participant Information Sheet

Study: "Experiences and Outcomes of the participants of the Activity Based Experience (ABE) Programme at Richmond New Zealand Trust Ltd.: a mixed methods study"

As the Client Engagement Facilitator at Richmond New Zealand Trust Limited, I am contacting you on behalf of Arno Grueber to invite you to participate in a research project to evaluate Richmond's ABE Programme. Arno is currently enrolled as a Master student at the Health Sciences Centre, University of Canterbury. Participation in this study is voluntary and non-participation will not affect any eligibility for care provided by Richmond New Zealand Trust.

Please take time to read the following information carefully and discuss it with others if you wish. Please contact us if you require further information.

What will I be asked to do?

If you agree to participate in this research project, you will need to consent that your contact details can be released to Arno Grueber and that you will take part in an interview. The interview will take approximately 30 to 45 minutes and take place at a time and location convenient to you. The interview will be recorded on a digital audio recorder. Within approximately four weeks after the interview you may be contacted by Arno to clarify items of the interview. You will be also given opportunity to review and amend your transcript of the interview. Your participation is voluntary; you may choose not to answer any questions with which you are uncomfortable. You can withdraw from participation at any time without any penalties or having to give a reason. You may also choose to have a support person and/or advocate present at the interview. All identifying information will be kept strictly confidential.

What questions will you be asked?

You will be asked to describe your experiences with the ABE Programme, your difficulties, your motivation and what the programme meant to you.

What will happen to the information?

Audio tapes will be transcribed and then analysed by Arno and discussed with the supervisors at University of Canterbury. No other person will have access

to these data which will be stored in a locked cabinet or on a password protected computer.

What are the benefits and risks of participating in this study?

This research project will be conducted in order to find out how physical activity impacts on peoples' well-being, recovery and quality of life. Also the information obtained from this research will help to identify how the ABE Programme can be improved for a higher quality and standard of service and better outcomes for clients.

What will happen to the results of this study?

Material from this project will be published as a Masters thesis. A summary of findings will be made available to you if you wish. Findings may also be published in an academic journal or be presented to interested professional groups within the New Zealand mental health sector or at a conference. However, you will not be personally identified in any publication or presentation.

Who is supervising the research?

This research is supervised at the University of Canterbury, Health Sciences Centre. Supervisors are Assoc Prof Pauline Barnett and Dr Jeffrey Gage. The project is also under the umbrella of Richmond New Zealand Trust Ltd. This study is supported and approved by Service Delivery Manager Debbie Browne and Operational Manager Martin Cole.

Who funds the research?

This research project is being carried out as part of the requirements for a Master's degree in Health Sciences from the University of Canterbury. Both the Health Sciences Centre and Richmond New Zealand Trust Ltd. are contributing funds towards the study.

Who has reviewed this study?

This research has received ethical approval from the Human Ethics Committee of the University of Canterbury.

What do I do now?

If you wish to participate please sign the attached consent form and mail it back in the enclosed pre-paid envelope to Margaret Bates. After receiving your consent Arno will contact you to arrange an appointment with you for the interview. If you have further questions, please feel free to contact Margaret Bates by phone, text or email:
Phone: 03 371 5572
Mobile: 027 68791745
Email: mabates@richmond.org.nz

Who do I contact if I have any concerns about this research?

Assoc Prof Pauline Barnett
Supervisor of this project
University of Canterbury
Phone: 03 366 7001 ext 3692
Email: pauline.barnett@canterbury.ac.nz

The Chair
Chair, Human Ethics Committee
University of Canterbury
Phone: 3 364 2987 ext 6390
Email: human-ethics@canterbury.ac.nz

Thank you for your consideration of participation in this study.

Yours sincerely

Margaret Bates

Client Engagement Facilitator

Richmond New Zealand Trust

Appendix 7:

Approval from Richmond Services Ltd.

Richmond New Zealand Trust Ltd

115 Grange St | Hillsborough | Christchurch 8022
P O Box 2322 | Christchurch 8140

Richmond
Partners in Health and Wellbeing
He whiringatahi mō te oranga tinana, oranga wairua

20th March 2012

Approval from Richmond New Zealand Trust Ltd. for the research project:

"Experiences and Outcomes of the participants of the ABE Programme at Richmond New Zealand Trust Ltd.: a mixed-methods study"

Conducted by Arno Grueber (Community Support Worker, ABE Programme)

Supervised by Assoc Prof Pauline Barnett and Dr Jeffrey Gage, Health Sciences Centre, University of Canterbury.

The overall aim of this study is to understand the impact of the ABE Programme on clients in terms of physical and mental health changes, and the experiences and outcomes of participants, and identify opportunities for programme improvements.

Data collection will consist of a mixed-methods study which comprises a quantitative and qualitative component: the quantitative component of this study includes an analysis of physical and mental outcome measures and a satisfaction survey. The qualitative component includes a qualitative description study using semi-structured interviews with participants who completed the ABE Programme.

Ethical approvals from the University of Canterbury Ethics Committee and the National Health and Disability Ethics Committee will be needed for the study. The study goes ahead with agreement and conjunction with my Service Delivery Manager Debbie Browne and approval from the Board and Strategic Management Group (SMG) of Richmond New Zealand Trust Ltd. Approval from clients will be needed to agree to take part in the study by signing a consent form. Privacy and confidentiality is ensured and in accordance with the Privacy Act. All client data provided externally are non-identifiable. Participation is voluntary and clients are free to decline the semi-structured interview at any time and for any reason. Every participant will receive an information sheet about the research project and be informed about the results of the study if they wish.

The study will commence at the beginning of 2012 and is planned to be completed by the end of 2013 with utilizing data captured from 2008 to 2013. Findings will be published within Richmond's intranet, Te Pou and submitted to an academic journal. Also they would be presented at a SMG meeting, a conference and within the mental health sector.

The study supports the principles and concept of the Outcomes Framework in order to provide client centred, evidence informed and outcome focussed services. Any documents going to the public domain would be approved by SMG.

With this letter the Board and SMG of Richmond New Zealand Trust Ltd. approves in principle this project to be conducted under the above mentioned conditions.

Yours sincerely

Martin Cole

Appendix 8:

Ethical approval from the Human Ethics Committee of the University of Canterbury

HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2012/77

30 July 2012

Arno Grueber
Health Sciences Centre
UNIVERSITY OF CANTERBURY

Dear Arno

The Human Ethics Committee advises that your research proposal "Outcomes and experiences of participants of the "Activity Based Experience (ABE) Programme" at Richmond New Zealand Trust Limited: a mixed methods study" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 27 July 2012.

Best wishes for your project.

Yours sincerely

Michael Grimshaw
Chair
University of Canterbury Human Ethics Committee

Appendix 9

Rosenberg Self-esteem Scale

Rosenberg Self-Esteem Scale:

SA: Strongly agree

A: Agree with a Statement

D: Disagree

SD: Strongly Disagree

1. On the whole, I am satisfied with myself	SA	A	D	SD
2. At times, I think I am no good at all	SA	A	D	SD
3. I feel that I have a number of good qualities	SA	A	D	SD
4. I am able to do things as well as most of other people	SA	A	D	SD
5. I feel I do not have much to be proud of	SA	A	D	SD
6. I certainly feel useless at times	SA	A	D	SD
7. I feel that I'm a person of worth, at least on an equal plane with others	SA	A	D	SD
8. I wish I could have more respect for myself	SA	A	D	SD
9. All in all, I am inclined to feel that I am a failure	SA	A	D	SD
10. I take a positive attitude toward myself	SA	A	D	SD

Appendix 10:

Warwick-Edinburgh Mental Well-being Scale

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)

Below are some statements about feelings and thoughts.

Please tick the box that best describes your experience of each over the last 2 weeks

STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been feeling interested in other people	1	2	3	4	5
I've had energy to spare	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling good about myself	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been feeling confident	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5
I've been feeling loved	1	2	3	4	5
I've been interested in new things	1	2	3	4	5
I've been feeling cheerful	1	2	3	4	5

Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)

Appendix 11:

Question guide for interviews

Health Sciences Centre

Tel: +64 3 364 2987, Fax: + 64 3 364 2490
Email: healthsciences@canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Questions guide

"Experiences and Outcomes of the participants of the ABE Programme at Richmond New Zealand Trust Ltd.: a missed methods study"

Basic demographic information:
Date of birth, ethnicity

Tell me about your experience with the ABE Programme.

What were your experiences during and after a typical session with the ABE Programme?

What changes have you noticed as a result of the programme?

How has the ABE Programme impacted on your quality of life, mental health and recovery?

How has it changed the way you think about exercise (and maybe nutrition)?

What were barriers for you to participate and how did you overcome them?

What happened after you have finished with the programme?

What do you recommend to improve the ABE Programme?

What else do you like to say about the programme?

Appendix 12:

Consent form to participate in interview

Health Sciences Centre

September 2012

Tel: +64 3 364 2987, Fax: + 64 3 364 2490
Email: healthsciences@canterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Consent to participate in interview

Study: "Experiences and Outcomes of the participants of the Activity Based Experience (ABE) Programme at Richmond New Zealand Trust Ltd.: a mixed methods study"

Student/Researcher: Arno Grueber

Supervisors: Assoc Prof Pauline Barnett; Dr Jeffrey Gage, Health Sciences Centre, University of Canterbury.

- I have read the Information Sheet for this study, date: __/__/_____. I understand what this research study is about, that it is being undertaken by Arno Grueber and that my questions have been answered.

- I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the interview at any time and without giving a reason and any data I have provided will be permanently deleted.

- I understand that I will take part in the interview under the conditions set out in the information sheet.

- I understand that I may be contacted by Arno within four weeks after the interview for a follow up meeting or telephone call to clarify any items from the interview. I am aware that I will be given the opportunity to review and amend the transcript of my interview.

- I have had time to consider whether to take part.

- I understand that if I have any queries or concerns at any stage I can contact Margaret Bates (Client Engagement Facilitator of Richmond New Zealand Trust) or the primary supervisor Assoc Prof Pauline Barnett at the Health Sciences Centre, University of Canterbury.

  Contact details:
  Margaret Bates (mabates@richmond.org.nz, mobile: 0276879175, phone: 371 5572)
  Assoc Prof Pauline Barnett (pauline.barnett@canterbury.ac.nz, phone: 366 7001 ext 3692)

- I am aware that I can withdraw from my consent at any time without penalty and having to give a reason. Withdrawal will not affect any eligibility for care provided by Richmond New Zealand Trust.

- I wish to receive a summary of the findings: YES / NO

- I understand that if I have any queries or concerns regarding my rights as a participant in this study, I may wish to contact an independent Health and Disability Advocate as follows:

  Free Phone: 0800 555 050
  Free Fax: 08002787 7678
  Email: advocacy@hdc.org.nz
  Website: www.advocacy.hdc.org.nz

Name (please print):……..

Signature: .....

Date: .....

Contact Information:

Address: .....

Phone: .....

Email: .....

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee. Approval number: HEC 2012/77

Appendix 13:

Possible strategies to enhance exercise adherence (Weinberg & Gould, 2011)

Evidence based strategies to enhance exercise adherence (Weinberg & Gould, 2011)

Behaviour modification approaches:

- prompts/cues (for example posters, slogans, notes),
- signing a statement of intent (contracting),
- telling others about intentions,
- accumulate exercise throughout the day, for example 3x10 min instead of 30 min at once,
- trying new things,
- identify and plan how to overcome high-risk situations (like stressful life events, bad weather, mental un-wellness).

Reinforcement approaches:

- providing rewards, feedback on progress,
- self-monitoring / self-reward systems.

Social support approaches:

- like verbal reminding via txt, phone and/or e-mail,
- encouragement of friends, family, spouse, programme leader, exercise "buddies".

Intrinsic approaches:

- quality of exercise experience (enjoyable, in attractive scenery),
- meaningful and purposeful physical activity, i.e. making exercise practical and functional by walking, cycling to the supermarket, gardening or housework,
- completion of a decisional balance sheet (gains and losses to self of physical activity).

Appendix 14:

Effective motivational interviewing techniques

(Miller & Rollnick, 2002)

Effective motivational interviewing techniques (Miller & Rollnick, 2002)

- Asking open and evocative questions to enhance discrepancy between current behaviour and personal values to resolve ambivalence;

- Asking open questions about the contributing factors of problems and barriers;

- Brainstorming ideas for overcome potential barriers;

- Supporting and building self-efficacy to enhance client's confidence in capability to succeed by, for example, reviewing own past successes;

- Using affirmations, providing positive reinforcement and feedback;

- developing an activity plan, if required, making suggestions, provide information;

- Performing reflective listening to express empathy (especially being non-judgemental and accepting);

- Utilizing specific motivational interviewing strategies such as:
    - importance, confidence, readiness ruler (for example: how important is it for you to achieve your goal on a scale from one to ten - one meaning not important at all, 10 meaning extremely important? how confident do you feel to achieve that goal on the same scale?);
    - life satisfaction (past, present and future; for example: how was it in better times? What do you want to achieve in life? Where do you see yourself in five years?).